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IF THE BEST EFFORTS

of the temperamental theory supply only four of the fourteen forms of teeth necessary to harmonize with human faces, is that theory more than 4-14 efficient?



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If you are to select VULCANITE TEETH harmonious with any of those faces of natural teeth, you need artificial teeth in the typical forms and these modifications.

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THE DENTAL DIGEST

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OBSERVATIONS OF TOXIC SUBSTANCES IN THEIR RELATION TO ORAL CONDITIONS*

By WAITE A. COTTON, D.D.S., NEW YORK CITY

FIFTH PAPER

Toxic substances in the body, acting for a period of time so affect the eliminative system that it is unable to perform its full physiological function, and this condition is further increased by consequent accumulations which add to the susceptibility of the tissues.

The root, "Tox," of our modern word toxic can be traced back to a very ancient word meaning "Bow" or "Arrow," or in its broadest sense, some tool used for killing; hence the supposition that the first poison knowledge was that of septic poison, for the savages probably found that the weapons soiled with the blood of their victims made other wounds fatal.

Poison. Twenty years ago Blyth's definition of a poison was "A substance of definite chemical composition, whether mineral or organic may be called a poison, if it is capable of being taken into any living organism, and causes, by its own inherent chemical nature, impairment or destruction of function. Funk & Wagnall defines it as "A substance taken into the system which acts in a noxious manner, tending to cause death or serious detriment to health."

Toxine. Funk & Wagnalls define toxine as "A poisonous base found in animals caused by tissue-metabolism, a poisonous ptomaine."

Toxin. Gould defines toxin as "An amorphous, nitrogenous poison, formed by bacteria in both living tissue and dead substances."

The definitions given above do not to my mind convey the broad connotation of the word "toxic," or of the phrase which I prefer to use:—"Toxic Substances."

That toxines are poisons and that mineral and vegetable poisons can be correctly designated as toxic is evidenced by the name applied to that branch of medicine which deals with their consideration—"Toxicology."

Therefore in searching about for a phrase of broader meaning to be used in general discussion of poisonous material, both organic and inorganic acting within the body and exerting its influence upon the structures in the mouth, I have selected the words "Toxic Substances,"

*This article was commenced in the May DIGEST, and continued in the September.

reserving the toxin and chemical poisons for such special application as I may deem desirable.

Toxic Substance. I should define a poisonous, or toxic substance, as any substance, whether mineral, vegetable, or animal, that may be taken into the organism, or so changed or manufactured in that organism, that it produces an accelerating, or inhibiting effect upon any cell or group of cells, causing impairment or destruction of function.

Under this definition it will be noted that nearly all drugs are toxic substances, as they will cause impairment of function if administered continually over a period of time. Even food taken in excessive quantities will exhaust the cells which handle it so they cannot perform their function, and because of not being able to eliminate their own waste product, which develops into toxic substances, if continued may cause death, and often is the cause of seriously impaired health.

The continued effects of toxic substances on a cell vary in the ratio to the amount present, and the inherent rapidity of its action. Some will kill within a few seconds, while others require years of constant action for the same result.

The therapeutical effect desired by the physicians in the administration of drugs, is to accelerate lazy or inhibited cells, or to retard over-active cells. We must not forget that the therapeutic administering of a drug is not the inherent "cure" but is merely the "whip" that causes the cell to perform its function. Where the cell has been over-worked or lazy for a length of time so that it is not possible for it to return to its original normal reactive condition, a therapeutic dose may closely approach the toxicological.

There are three ways in which toxic substances may reach the cells:

- (1) By taking into the mouth.
- (2) By being manufactured in the body by micro-organisms or abnormal cell activity.
- (3) By the lack of elimination of cell waste products, or the lack of proper function of those organs, the duty of which is to so change waste products that the organs of elimination can eliminate them. For instance, kreatinin, a product of cell metabolism cannot be eliminated as such, but must be changed in form, principally to urea, 75 per cent. of this is accomplished in the liver.

A cell is the smallest element of an organized body that manifests independent vital activities. It is a structural unit. In lower forms of life like the amoeba, it is the whole organism. All forms of life originate from a single cell. The tissues of more developed structures are aggregations of cells.

All living things are either cells living singly or alone, as separate individuals, or a collection of cells, numbering up into the billions like plants, trees, and animals, where the cells all work together for the benefit of the whole. If the plant or animal lives, they all live. If the plant or animal dies, they all die. Death in the plant or animal is death to all of the cells.

It has been estimated that the human body contains from forty to sixty trillion cells. These cells of the human colony are not all of the same size and shape, they vary from $\frac{1}{125}$ to $\frac{1}{5000}$ of an inch, according to work they are to perform in the human economy.

A single cell like the amoeba, which is the complete organism, performs all the functions that are necessary for the maintaining of its life, while the work of maintaining the life of a large body of cells, like man, is accomplished by the cells specializing in a particular work and grouping themselves together, forming organs for each function in this human colony. In unity there is not only strength for the protection of the whole, but a greater power for a higher development than is possible in a single cell.

The cell is conscious. It has memory, will, judgment. The cell learns from experience, as organisms in general may be said to do. The cell, then, is a complete animal made up of still smaller individuals and organs just as a larger animal is. It has a head or directing centre which seems to direct the action of the other parts. This directing centre is called the centrosome. The cell has a series of subheads located in the middle of the body of the cell. They seem to be the part of the cell which contains power, knowledge and skill to perform the different kinds of work which the cell is required to do in order to exist. These subheads of the cell taken together are called the nucleus and they appear to be not one individual, but a colony of individuals. That this part of the cell called the nucleus is the part which has the power and knowledge of how to build the different structures in life is shown by the fact that if it is destroyed, the cell cannot do any more work nor reproduce itself, nor feed itself. In the same manner an animal is made helpless by the removal of its head. *

An experiment was performed by Professor James and Dr. Quevli on a decapitated frog. It could not of course see or feel and could not consciously perform any movement.

"Yet when a drop of acid is placed on the lower surface of the thigh of the frog in this state, it will rub off the drop with the upper surface of the foot of the same leg; if this foot be cut off, it cannot thus act.

* Cell Intelligence. By Nels Quevli.

After some fruitless effort it gives up trying in that way, seems restless, as though it was seeking some other way, and at last it makes use of the foot of the other leg and succeeds in rubbing off the acid. Here we have not merely contraction of muscle but combined and harmonized contractions in due sequence for a special purpose. These are actions that have the appearance of being guided by intelligence, and instigated by will, in an animal the recognized organ of whose intelligence and will has been removed."

The cells of this colony of man differentiate into three general divisions, the Mental, comprising the brain and nervous system, the Motive, comprising the bones, muscles, and ligaments, and the Vital, comprising the commissary, hygienic, and repair departments.

From late investigations it has become clear that the mind of man is the result of the minds of the individual cells working together in his head, which we call in the aggregate, his brain.

The real thinkers are the brain cells. They are there for that special purpose. The minds of men are not all alike because they have not all received the same information from the outside world, for the cells of the brain can only act on such information as they receive from the outside world.

A large aggregation of cells like man would not be able to exist in one place, so this unity of cells must have some mode of moving about, in order to maintain its life, and this is done by the Motive system.

There is no work in the development and maintenance of organic life that requires such accurate knowledge and faithful execution at all times as does the work of keeping the body in repair, preparing the food supply and conveying it throughout the body, so that each cell in the organism may obtain the material it needs to perform its function, and the taking away from each cell its waste material that the specialized cell whose function it is may excrete it from the body. **This is called the Vital system and its work is done without the knowledge of the upper brain cells.**

The human body may be closely compared to an ideal manufacturing plant, which is composed of a colony of men, performing their different tasks, in which they reach a high degree of efficiency by specialization, working together in harmony for a specific purpose. The specific purpose in the body is that each cell may exist by the coöperation of other cells in the maintaining of the body as a whole.

The human body is a colony of cells. A cell is a conscious and intelligent entity, as a workman is in a factory, with this difference—the object of the human factory is its own existence, and it is capable of moving from place to place in order that it may better maintain that

existence, by obtaining more easily the diverse materials needed for the life of all the cells.

A manufacturing plant has the same three distinct departments as has the human body: (1) the directing force or head, (2) the force that actually produces, such as the muscles, bones, and ligaments that move the body organism from place to place, and (3) that of the carriers, the cleaners, and the repairers, which do the work that is not possible or economical for the first and second departments to do without interfering with their own work. It is the duty of this department to prepare the material that is needed, to convey it to that department, and to take away from each cell or man and remove from the body or building, the refuse material, also to keep the body or building in repair.

First, the Mental system and the directing force are divided into the two branches, the brain or the office force, and the sympathetic nervous system, or the department superintendents and foreman. The duty of the office force is to collect and record what to them are facts from the outside world, and to convey to the department heads those facts that apply to that department. The superintendents or ganglia are experts in their departments as to how and what that department is to do.

Second, the Motive force which gives the body its locomotion makes possible productive effort. This is almost entirely subject to direction of the brain, as it has the recorded facts from the outside world and can better direct with this knowledge, what is best for the movement of the body as a whole.

Third, the Vital system, which is concerned in the supplying of these other two systems with all of their material and removing the waste. It is called the vital system because upon this system depends almost entirely the very existence of the whole organism. This system must take the food as obtained for it by the mental and motive, prepare it for the uses of all the cells in their different departments, convey it to all the cells that each may take from the supply the kind and quantity that is necessary for that particular cell in the performance of its special function. It also must take away from each cell its waste products, for these must be eliminated from the building, so there must be special organs to do that work. Not all waste products can be eliminated in the form in which they leave the cell; they must be changed by some other group of cells, so that the cells whose duty it is to filter them out can perform their function.

There are other cells in the body which have not taken upon themselves any particular work, as do the cells of the muscles and nerves, but live as separate beings in the body in the same manner as the amoeba

lives in the water. These cells are the phagocytes, leucocytes, and red blood cells. To these are entrusted the keeping of the body or building in repair and destroying the germs trying to enter the body.

The human factory has this difference: the individual workmen make up the whole, and are fixed in their particular department so that all supplies must be brought to each individual cell and the waste taken away. If this waste is not removed from the organism, it is left around in the corners, or intercellular spaces, mixed in with the stored up material, or remains with the material that is being delivered to the cells, from which they are constantly taking their needed supply.

I have found that the comparison of the human body to the industrial plant in the rough division of its functioning elements has been most useful to me as a basis of analysis and determining of procedure, also I wanted something practical and tangible in my mind under which to classify observations, in the beginning uncorrelated.

As the cells have the power to differentiate the functions they are to perform in the body economy, then they must also have the power to choose the kind of food that is necessary for their use in the performance of that function. But if the supply presented to them contains useless or harmful substances, such as products of uneliminated cell metabolism, then the cells are having constantly presented to them for use the material that they have already used, or some other cell has used and discarded. The cell, having consciousness and intelligence, rejects this material, but if persistently delivered to the cells in constantly increasing quantities, resistance is lowered or overcome and they necessarily must in time be affected by this waste material, with the result that it slows up the action of the cell or cells. When the cells that have to do with some part of the elimination are only just doing their work and no more, a slight inhibition of this department occurs. This means that it is leaving in the body that which caused the cell to work more slowly, thereby causing a greater accumulation of that substance which hinders its work or is a toxic substance to that cell or other cells.

A toxic substance formed by or in the tissues is just as much a chemical substance as a drug, and will have the same effect as though taken by the mouth.

These toxic substances remaining in the body through lack of elimination will have a growing effect upon the different tissues in proportion as it increases; and I believe that the vital system is the first to be affected, and as the mouth is a part of this system and the beginning of it, the effect can first be observed there.

I have devoted this paper to the exposition in a general way of

my conception of action and reaction within the body, in order that I may use the material contained in it subsequently in the explanation of my definite conclusions with reference to the part played by the body as a whole in the creation, development, and control of the special problems of dental diseases.

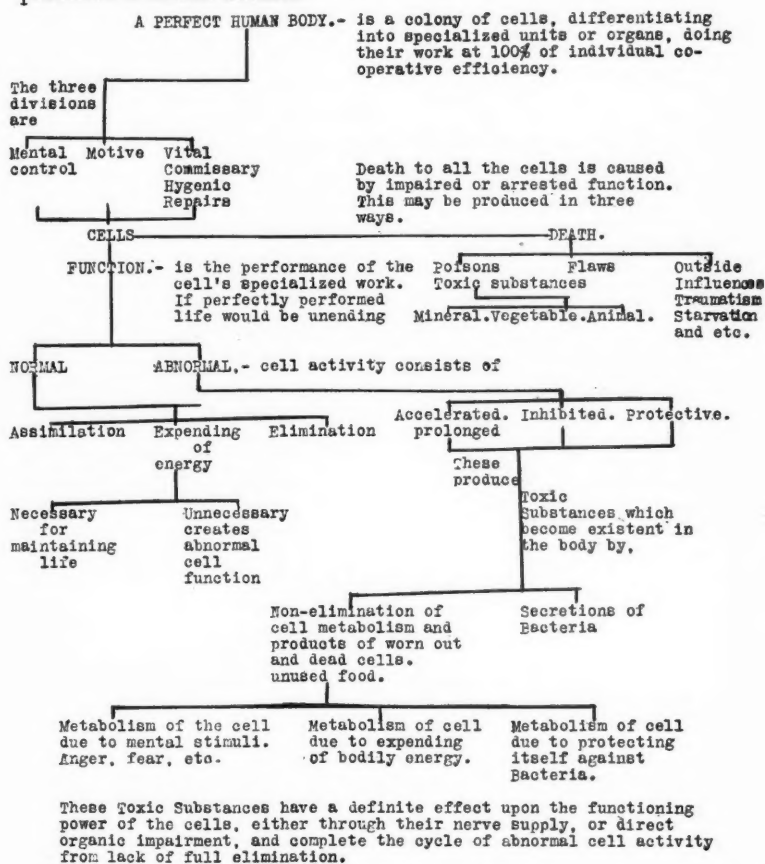


Chart showing the cycle of a human colony degenerating through either an inefficient or inadequately acting group of cells that are not performing their function sufficiently for the needs of the colony at large.

CONCLUSIONS:

A cell performing a definite function, using a definite material, has a definite waste product, which is eliminated by definite channels, but if remaining in the organism in constantly increasing quantities, it is a definite toxic substance, which will produce a definite result in the oral cavity in a definite type and texture.

**A PLEA FOR THE MORE GENERAL USE OF THE X-RAY BY THE
DENTAL AND MEDICAL PROFESSIONS IN THE DIAGNOSIS
OF HIDDEN AND OBSCURE ORAL TROUBLES**

BY FRANK L. WARREN, D.D.S., LOS ANGELES, CALIF.

The following case is presented with the hope that more of the professions may realize the importance of the use of the X-ray as a means of locating the hidden causes in the obstinate and apparently hopeless cases.

History—Patient, female, fifty-two years of age, general health good. Had been troubled for thirty-four years with severe trifacial neuralgia in



Tooth in an inverted position suspended in a large cyst

the right side of face and head; pain gradually increased in duration and severity until patient was rarely free from it. All treatments generally resorted to in this class of cases were used, including treatment at hot springs, but nothing afforded the patient more than temporary relief. Finally it was decided to have radiographs made of the teeth to ascertain if any abscess condition at the apices of the roots might be responsible for her trouble. In making an examination of the mouth it was found that the lower right third molar was missing. Patient reported not having had this tooth extracted nor ever having had any trouble in this location.

An intra-oral radiograph was made, which showed the lower right third molar malposed in an almost inverted position. An extra oral plate was made of this section of the mandible, which revealed the tooth in its inverted position suspended in a large cyst, the absorption of which had nearly severed the bone at this point. The radiograph also showed the distal portion of the roots of the second molar to be badly necrosed. It was thought best under these circumstances to remove the second molar, as well as the inverted third molar. With patient under a general anesthetic, these teeth were extracted. The cyst cavity was thoroughly curetted to remove the cyst sac. The wound was treated in the usual surgical manner. In twenty-one days patient reported that she was entirely free from any neuralgia. Twelve months later there had been no recurrence of these pains.

ADAPTING A FIXED POST CROWN

M. G. SWENSON, D.D.S., MINNEAPOLIS, MINN.

Casting a gold washer to a fixed post crown is the most plausible answer to the want of an efficient yet more easily made crown.

Prepare your root as you would for a porcelain crown—slightly under the gum margin. Grind the fixed post crown, getting it adapted the best your ability and conditions will permit. Back the base with pure gold (by punching a hole for the post), burnish and trim. Then melt inlay wax and pour with spatula on the base and push firmly to place. Holding in position, trim wax to suit your judgment. Remove and insert sprue. Then invest and cast. I use 18k or 20k to cast this washer as the heat is not as great as higher karat and not so apt to check porcelain. Caution should be used to have ring very hot when gold is cast so as to have porcelain at almost as high a temperature as the incoming gold.

The altogether too prevalent method of using only cement cannot be too strongly condemned because it is beyond human ability to properly fit an ordinary cement washer porcelain crown. Of course, the old separate washer crown has a difficult technique and does not assure success in a large percentage of castings, although otherwise good.

Hence one is not justified in using otherwise than the above mentioned if he sees fit to use that manner of crown. The cost of gold is so much less than the vast additional service you have rendered, that that could not be an excuse.

ORAL HYGIENE AT LOCUST POINT

THE OPEN AIR CLASS

BY CHARLOTTE FITZHUGH MORRIS, BALTIMORE, MD.

THIRD PAPER

One day, four years ago, two sparrows perched on the fence of the Locust Point Public School, saw a strange sight. Under the schoolyard trees was a little class of children with their teacher.

"My word!" ejaculated one of the sparrows, stepping about excitedly, "this is sensible, very sensible. They have let some of the children out of the cage to work, and I, for my part, congratulate the Principal on her kindness to dumb animals."

"Never will I forget," said the second sparrow, "that morning I inadvertently flew in a schoolroom window. It was dark and warm; my head swam. I was not afraid of the children, as they supposed, but after the morning sunlight and the fresh blue sky, that warm, stuffy room—I gasp when I think of it."

"I wonder," inquired the first bird of his mate, "why they are letting this handful of children out and keeping the great majority shut up in the cage? It is just the opposite with us lucky birds—only a very few of us are caged and the rest of us live out of doors."

To this day, the sparrows are still wondering why some few of the children are brought out into the air to work; for to the birds these are the privileged children, the free and uncaged children loved by sun and sky and air. The old woman pausing at the open schoolyard gate knows, too, that they are privileged, but she knows why.

"Look at 'em squaddled up in them Injun blankets," she chuckles, "and see the 3rd in the 1st row?—that's my Bessie. She was born sickly, but they don't care so much how you're born down here, it's just how you live after. Her lungs is weak. Yes, lungs is like them pillow-cases hung out on that line yonder. They say they are sort o' big bags slung down over yer collar-bones. Hung out of doors they get full of air, puffed-up like; indoors they hang limp. My Bessie's lungs is full of good air now like a pair of pillow-cases hung up in a stiff wind. If you stop a while, Miss, and set in my kitchen, I'll tell you how it come about.

"See that there window down at the top? Bessie done that. We used to nail it up for the winter, but for Bessie's sake we keep it open a bit and I don't mind it myself now. Well, they wouldn't let Bessie

in the school along with the rest of the children when they found her lungs weren't so good and she ran the streets and didn't get a bit of learnin'. I'm not much on learnin' myself but I'll send you a pan of nice hot rolls at my next baking. Now, some people, I dunno just who, was for sending Bessie to the mountains, but I couldn't let the child go among strangers, could I; and she never been off the Point 'cept to go with a lady to the dentist uptown, and I wouldn't leave her go. It seems like there were a plenty of children like my Bessie—not all with consumption, but some of them got the fidgits something awful, and are weak and such. So the Principal of our school, in our Parents and Teachers Club meeting gave us a mighty informin' talk about the air,



"All squaddled up in Injun blankets"

and what Miss Miller talks about is worth listenin' to, Miss. That's the first time I ever heard about what they call an Open Air Class. Now, Miss Miller told us about it, but don't you make no mistake, we ladies, mothers of the sickly children, *did* it. There ain't nobody, not Miss Miller herself, going to manage my children, but just show me what's good for Bessie and I gets it myself. So some of us says to Miss Miller—'Let's get up a petition about this new fangled class and send it to the men with the money'; and Miss Miller sees the sense of that and she'll show you that grand long paper with all our names on and remarks by the parents beggin' for a open-air class for the sickly children. And all you got to do is to look in that gate they always have open to see that we got what we asked for. . . . You got to take

some children to the dentist now? Well, Miss I'll send them rolls by Bessie."

From the beginning this open-air class has differed from others of its kind. Its early history is distinguished, for it was started, not by educational experts, but by the men and women of Locust Point who, for the most part, live during the day five or six in one room, gathered around the kitchen stove with windows sealed for the winter months. Nature attempts as usual to adapt herself to circumstances, but in spite of her valiant efforts, some children do not grow "Round and Rosy" (the Open-Air Class slogan) on coffee and store buns eaten with parents and grandparents, and the twins, and big brother and little sister in the little kitchen with the big stove. Those little ones who droop under these conditions are not fit for the ordinary public-school classes. They are not strong enough to keep up with this work, and they are a menace to their companions. When the Principal of the Locust Point School had mastered these conditions she lost no time in obtaining her remedy. She got figures because the men to whom she was to carry her problem could trust to figures when their faith in human experimentation was rather unstable. She found that to send two children to the State Sanitarium as the Doctor recommended, not only meant separation from the parents but a cost of \$150 for each child, while to give him a seat in an open-air class cost \$50 for each child, a saving on two children of \$200. But the Principal had a far more important thing to show than figures. She had a tangible proof of the coöperation and consent of the parents of the children. In this matter she was like a careful thrifty housewife who does not sit at her 'phone and order the food for her family knowing well that if she does, she will not get just what she wants. Rather, she gets up early and goes to the market armed with ready cash and a market basket and she brings home a basket full of the good things she started out to get. Her figures were convincing, but still more convincing was that remarkable document in her possession which that old lady alluded to. This was a petition, thirty-two feet long, with a double column of signatures signed by mothers and fathers and accompanied by petitioning notes such as—"please to have this class right away"; "I have a child must have open-air rite away." "If it been done long ago there would been not so much sickness now," etc. This petition, the idea of the Mothers themselves, did more to obtain the open-air class than any other one thing. That the most ignorant families in the city should have been brought to understand the necessity for the open-air class is not only a most encouraging fact in the evolution of education but it is a fact that compels our deepest respect for the petitioners, and it arouses an

added reverence for the possibilities in men and women that lie so latent and so deep.

Subsequent steps in the history of the class I shall have to give very briefly. The first sessions were held under the sky and trees because tents cost money. But a teacher was provided, and little did the school-board know, with its eye on economy, that it was presenting the school with something priceless. This teacher, Miss Bertha Carr, has been with the class from its beginning, four years ago. A visitor, after hearing the children recite to the Social Health Worker on what was best fitted to make children "Round and Rosy," remarked *sotto voce*: "There is one thing that has helped the health of these children as much as oat-



Children taking their afternoon naps in the open air

meal and milk and dentistry and afternoon naps, and that is Miss Carr." The mothers with the aid of the faculty had made the out-door suits for the children; they had done their part. Finally an honored visitor came to the class, and very soon after a canvas covering was provided. At present there is a wooden roof and the sides may be partly shut in very cold and windy weather.

So the Open-Air Class was established and it now stands as a monument to the mothers and fathers who with the guidance of the faculty of a Locust Point Public School, got this good thing with their own brains and hands for their children.

(The story of this class will be concluded next month)

DENTAL SERVICE AT CAMP HANCOCK

HEADQUARTERS TWENTY-EIGHTH DIVISION

By C. JUDSON HOLLISTER, D.D.S., 1ST LIEUT. DENTAL CORPS, U.S.N.G.

In 1911, in Germany, I saw German cities doing for its children just what Dr. Hollister suggests here. Probably many of the boys served then with free dental service, are now serving as soldiers. We may be sure they started out with clean, healthy mouths and well cared for teeth. To that extent, their efficiency was assured in advance.

This is an optimistic inspiring article.—EDITOR.

Our first few weeks in camp were spent in getting acquainted with our fellow officers and surroundings. After getting settled I began to look around for equipment with which to work in order to fill the position for which I had been commissioned and found that conditions were much the same as existed at the Texas border last year, when quite a number of dental surgeons were on duty with no instruments. However, at this camp we had, right from the start, two outfits that were issued last spring.

In this division there are almost thirty thousand men and our Dental Corps is made up of thirty-three 1st Lieutenant Dental Surgeons located with the various regiments or units.

Very soon after our arrival here we got together to talk over plans whereby we could by hearty coöperation do the most good until our outfits arrived.

From my experience on the border last year, I was able to note good results of giving the enlisted men lessons on Oral Hygiene, so I suggested that each one of us take our regiments by companies and give simple talks on the care of the teeth and the oral cavity. We decided to do this, so the first thing we had to do was to get the hearty coöperation of the "Line" officers. On reports from the other men and my own experience, I can truthfully say that to a man they have been with us from the start. The same feeling, however, did not exist among the men in the ranks at first, but now after several weeks of work, we are all able to say that that feeling is rapidly being replaced by an eager desire on the part of most of the boys to clean up for themselves as much as possible, for we have promised them that we "will help them that help themselves."

While on the border last fall the possibilities in teaching and training what was at that time almost "Raw" material, from a dental standpoint, got hold of me to such a degree that I determined to see if I could make any impression on these men.

I worked with the soldiers at that time a little over two months

and was very much gratified by results that I could see then, but there was a greater satisfaction in store for me this fall. When I arrived here I went to one of the regiments with which I had lived and worked last year just to renew acquaintance with the officers, and the following is what I was told of two or three companies of that regiment:

They have a regular "tooth-brush" drill every morning. I was from Missouri so the morning after my call I made another trip down to this regiment to see with my own eyes what I had been told. It was true and sure a great sight to see 150 men in line with cup, tooth-brush, and paste or powder in hands "cleaning up" in a way that had been entirely unknown to most of them a few months ago, for by a question I asked all patients last year, I found at least 50 per cent. never used a tooth-brush with any degree of regularity. And I was further pleased to have the Dental Surgeon at present assigned to that regiment say to me that his work was easy because of the drilling I had given the men last year. He said that the mouths of the older men (in point of service) were in very good condition and showed evidence of some care so that all he had to do was to work with the new recruits. The above goes to show that concentrated effort on the part of the Dental Corps will go a long way toward making efficient soldiers out of the raw material that has so suddenly been drawn from civil life into the service of our country.

Two weeks ago I received a private donation of a dental ambulance so was able to get down to real constructive work and as I am for the most part working on entirely new men, I am having the experience of a year ago repeated in about the same way.

There is one company under my care that I worked for last year and two other companies that, as units, never had dental attention. I have been able to make a very vivid comparison and the "old" company is 100 per cent. better, from a dental standpoint, than the other two. In the last two companies I have found mouth after mouth full of badly broken down teeth and snags and the remaining sound teeth encrusted with stain and tartar. Only this morning a private presented himself at my "office" requesting that I clean his teeth. I took one look, stopped breathing and told him to sit down. I have yet to look at a mouth in worse condition from lack of care. I dug for a full hour and then sent him away with strong orders to "police" that mouth regularly for ten days and then report for inspection and further treatment, which I would gladly give him if in that time he had shown an interest in his own welfare.

I have seen a large number of cases of pyorrhea, some of them quite

severe. One case was brought to my attention by a medical officer who told me that this man had been in the base hospital for several weeks suffering from stomach trouble. Pyorrhea had done its work to such a degree that the teeth were loose beyond any hope of repair, so I suggested taking out the worst ones. The patient was frightened and asked that he be allowed to return at another time, so after giving him a long talk trying to show him that we had his welfare at heart, I let him go to return the next day. He failed to show up and a few days later I heard that he had been discharged on what we call a S.C.D. meaning a surgeon's certificate of disability. This case was from another unit and I feel sure that had that man received proper instruction in oral hygiene that he would now be an efficient soldier in the service of his country, instead of being on his way home as unfit. The above is not the fault of the "Army Dental Service" in the least. It dates back much farther than that for the man in question was only enlisted three months ago. It really goes back to his primary days and I believe that the day will soon come when we as a nation will realize the importance of teaching the child early in life how to properly take care of his teeth. It is true that many large cities have for some time been doing just that to some degree, but I think it should be a national instead of an "Urban" movement so that the entire youth of the land would receive their share of the benefit of such training.

I have drifted from my subject of "Army Dentistry" but I wanted to express a thought that was so forcibly brought to my mind by this one young man who told me he had never given his teeth any care and that no one had ever told him that he should. If this case of pyorrhea had had about two years less start, I'll say that we dental surgeons of the army would have brought him back to health and efficiency, for here, with the coöperation of the commanding officers, we have absolute control over our patients and are in a position to see that they live up to our instructions to the letter.

Last year at this time, being on the outside looking in, I was in doubt as to the efficiency of the Army Dental Corps, but now, after just a few months' service in that corps, I am convinced that it has earned a big place in the life of the soldier and that even now with large numbers of men to serve and large numbers of dental surgeons to supply with equipment, which is naturally taxing both the government and manufacturers to obtain, a great good is being done and that in the next few months that some real dental history will be written. It is with pride that I say I am going to attempt, to the limit of my power, to make some of that history and that is the attitude and ambition of this entire corps.

CLOSED MOUTH IMPRESSIONS

BY SAMUEL G. SUPPLEE, NEW YORK, N. Y.

FULL UPPER WITH SOFT RIDGE

(Technic No. 3)

TWELFTH ARTICLE

The type of mouth which presents a soft ridge in the region of the six or eight fronts or in which the tuberosities are flexible, offers the most difficult problem in upper denture making, and will be referred to as class four.

In this article we shall deal entirely with the principles of proper displacement of the soft ridge in front, and the reader will understand that the same principle necessarily applies to the ridge in the bicuspid and molar regions: viz., the displacement must be excessive toward the centre of the vault, rather than in the least degree toward the buccal or labial.

The patient is usually one who has worn rubber dentures for a number of years and knows what to expect of them. In a great many cases this soft condition is the result of the front teeth striking too hard. It may occur where the lower bicuspids and molars have been missing for years.

Generally the patient has either heard that a partial lower denture is troublesome or has had unpleasant personal experience with one and will not consent to have the missing bicuspids and molars supplied until the upper is made satisfactory.

If the dentist consents to make the upper first, it is the experience of the writer that both he and the patient are doomed to disappointment from the start. The best results can only be secured from making both at the same time, or making the lower one first.

This article being limited to technic for full dentures only, the reader can secure a very valuable booklet just published, covering the technic for partials, which solves the problem of the partial lower in such a simple and definite manner through the medium of a new impression tray, that the operator is enabled to secure an impression with the mouth closed and under biting pressure at one step.

In presenting this technic we shall presume that the patient has all the lower teeth or lower denture. The technic for a full upper and lower will be given in an article following the technic for a full lower. The following technic is based on the equalization of bearing by means of a correct bite. Unless we have occlusion in the incisor and molar

regions, it is a waste of time to attempt to follow this technic for it will only result in failure.

IMPROPERLY DISPLACED RIDGE CAUSES TROUBLE

In taking the customary impressions for full upper dentures where the ridge in front is soft or flexible, the tendency is to displace the yielding ridge forward and upward.

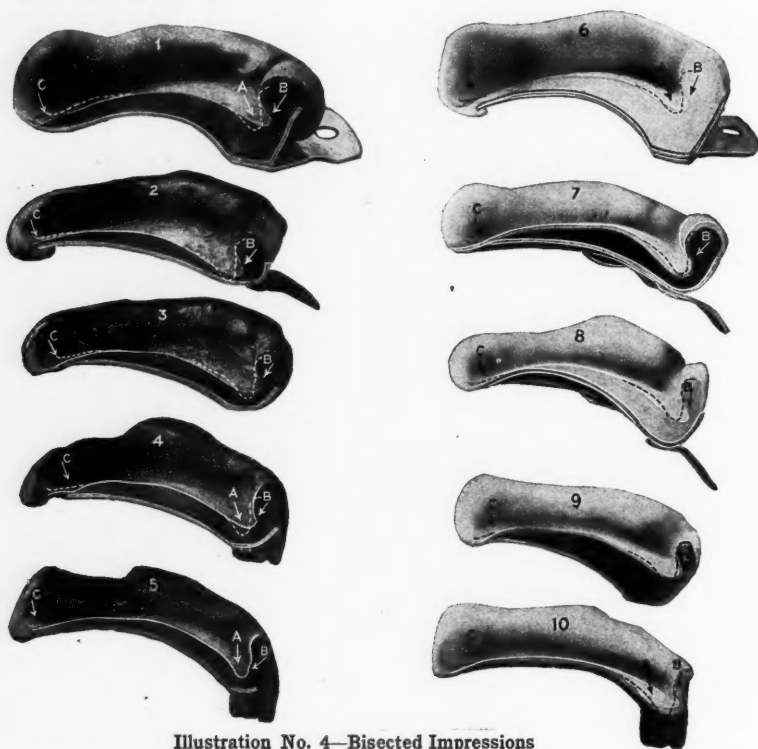


Illustration No. 4—Bisected Impressions

Cuts No. 1 and 6 represent ordinary impressions of modeling compound and plaster, showing the ridge improperly displaced forward and upward.

Cuts No. 2 and 3 taken with soft compound and small tray.

Cut No. 4 shows impression with the mouth closed and under biting strain with the ridge in front and tissue in rear third of vault improperly displaced.

Cut No. 5 shows the ridge in front and soft tissues in the rear third of the vault properly compressed and displaced, and is the exact duplicate of the formation of the plate being worn by the patient and made by the writer some five years ago, after the failure on the part of a number of dentists to make successful dentures.

The dotted lines on the different impressions are the tracing from cut No. 5 which is correct, and indicate the improper displacement of tissues in the rear third of the vault and the soft ridge in front, and points to the cause of the failure.

The space under dotted line indicated by C in cut No. 4 shows the results of improper displacement of tissue by adding compound at the rear edge first and then "post-damming."

Cuts No. 7, 8, 9, and 10 show efforts with very soft plaster. (7) Compound tray. (8) Small metal tray. (9) Wax tray. (10) Shellac base plate under biting strain.

In many cases it is impossible to avoid this even though one use the thinnest plaster, as is fully illustrated by the photograph of the bisected impressions.

When a plate made from this impression is placed in the mouth the tissue has a tendency to rebound downward and force the plate out of contact with the area in the forward third of the vault, and many patients will complain of a hollow space directly back of the six fronts.

PROPER POSITION OF RIDGE

The position of the ridge and soft tissue is vital, and our one object is to make sure that the ridge is pressed downward and inward, not pushed forward and upward.

Pressing the tissue downward and inward establishes two important conditions: first, that the tissue is not drawn over the anteropalatine canal sufficiently to cut off circulation or cause congestion of the nerve centres. Second, by forcing the soft ridge downward and backward into the impression when biting pressure is being applied, the rebound will be forward and upward when pressure is released, a condition that means comfort to the patient and stability to the denture.

You may have had patients complain of a pain directly back of the four front teeth, but on examination you cannot discover any inflammation or sore spot by which to verify the cause.

When you have cut off sufficient of the plate to relieve the trouble, you have destroyed the fit. This is due to the fact that the tissue has been forced upward by the impression; and when biting stress is applied, the soft ridge is forced still further upward and forward and the movable tissue connected with it is drawn over the anteropalatine canal creating the uncomfortable pressure. When the pressure is released, the rebound of the ridge forces the plate downward and causes the patient to experience the lack of fit over the forward third of the vault.

FORCE RIDGE DOWNWARD AND BACKWARD

By forcing this soft tissue downward and backward when correcting the impression, we not only avoid the congestion but eliminate the sag of the plate when pressure is released.

LENGTH ANTEROPOSTERIORLY

When the ridge is soft in front, it is generally necessary to extend the plate 1-16 to 3-16 of an inch on the vibrating soft palate in order to imbed the rear edge sufficiently deep in the soft tissue so that when pressure is brought to bear on the six fronts, it can move upward slightly in front without breaking contact in the rear.

The distance the plate must extend over the soft palate and the depth the edge must be imbedded, will depend entirely upon the softness of the ridge in front and the general length of the vault antero-posteriorly. The softer the ridge, the longer the plate.

It is a simple proposition of compensation and conformation to the law of leverage, in which the hard area in the middle third of the vault is the fulcrum. The position and density of the hard area will be an important factor in determining the length.

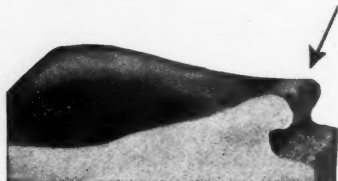


Fig. 1

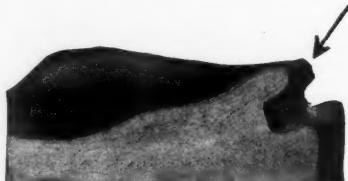


Fig. 2

Illustration No. 5

Showing proper and improper displacement of soft ridge in front

- No. 1 indicates proper compression and displacement (downward and backward).
No. 2 indicates improper displacement and no compression (forward and upward).

COMPENSATING STRAINS EXPLAINED

By compensation I mean that the plate must extend far enough posteriorly and the rear edge be imbedded deep enough into yielding tissue so that when the yielding ridge permits the front of the plate to move upward under pressure and the rear end of the plate is forced downward, the soft tissue will be sufficiently resilient to maintain contact with the rear of the plate.

By forcing the ridge in front downward and backward during impression taking, as above indicated, the depth it is necessary to imbed the rear edge of the plate into soft tissue to maintain contact during incising is reduced by limiting the amount it will move upward in front.

At first thought one would be inclined to believe that imbedding the rear edge of the plate into the soft tissue so deeply in the rear, would cut the tissues or cause irritation, and it certainly would if the ridge in front was hard or the operator were to go to extreme measures.

The greatest pressure of the denture into the soft palate is during movement or when the mouth is open wide. The condition thus created automatically takes care of itself; for when incising the mouth is partly open and the plate is forced up in front and the rear moves downward. But inasmuch as the tissues were under pressure, the soft palate pulls downward and assists in maintaining contact, thus acting as a controlling factor in retaining the plate.

Under ordinary circumstances if the plate extended back on the soft palate, it would be dislodged by the downward pull over the rear edge when the mouth is open wide; but here again the soft ridge displaced downward is a factor in our favor, for when the mouth is opened and the soft palate pulls over the rear edge of the plate, the rebound of the ridge (being forward and upward) permits the front to move slightly upward in front, thus compensating for the downward strain in the rear. It is similar to the old country see-saw, but the movement is so slight that the patient is not conscious of it.

When the mouth is open wide and the tissues have a tendency to draw the plate down in front, the soft palate also pulls downward and the buccal and labial attachments are drawn over the margin, thus displacing the denture from contact in the centre of the vault. It creates a temporary vacuum which is a factor in retaining the plate only when the mouth is opened beyond normal.

When this principle is thoroughly understood it emphasizes the importance of an impression with the mouth closed and under normal biting strain. It facilitates equalizing the pressure on the hard and soft tissue and the construction of a denture that will be stable under all conditions.

A careful study of the ten bisected impressions showing different positions of the ridge due to proper and improper displacement in the rear third of the vault, shows the effect of proper and improper compression and displacement of the soft tissues.

The condition of the ridge in front indicates the length of the plate antero-posteriorly except where there is a bony prominence in the median line well toward rear edge of hard palate.

Approximately speaking, when the ridge in front is only slightly soft, the plate should extend $\frac{1}{8}$ of an inch beyond the vibrating point, or should overlie at least $\frac{1}{2}$ an inch of movable soft tissue.

If medium soft, it should be $\frac{1}{8}$ of an inch beyond the vibrating point, or overlie $\frac{3}{4}$ of an inch of movable soft tissue.

If very soft, it should always extend from $\frac{3}{16}$ to $\frac{1}{4}$ of an inch on the movable soft tissue.

The impression tray should never be more than $\frac{1}{8}$ of an inch short of the length of proposed plate. It should be fitted very accurately so as to carry the soft tissue up with the edge of the tray in such a way that the excess of soft compound will be compelled to pass between the tray and the vault as it flows toward the rear when taking the base impression.

It will be understood that if a bony prominence in the median line extends to the rear third of the vault it is many times necessary that

the rear edge of the denture (palatal margin) will take the form of the reverse of the figure three. That is, the plate will extend back farther near the median line, and will be the shortest (anteroposteriorly) midway between the median line and the tuberosity on both sides.

(To be continued)

THE DENTIST AND THE LAW*

A BRIEF INTRODUCTION TO DENTAL JURISPRUDENCE

BY WILLIAM NETTER, OF THE NEW YORK BAR

SECOND PAPER AND CONCLUSION

For references to other topics bearing on the testimony of medical or dental expert witnesses, see foot note.¹

In many cases, opinions of medical and dental experts are entitled to great consideration and respect; in others, they are entitled to but little consideration.² But in any case, the opinion of a medical or dental expert on the stand is but advisory; each individual juror is still entitled to use his own judgment on the particular question of fact which he is to decide; in no case can the opinion of the expert override that of the jury; the jurors as the final arbiters must decide the facts. The jury is not bound to accept the opinion of an expert witness.³

I shall make brief mention at this point of the much mooted question as to whether an expert witness is entitled to extra compensation for testifying. This question has never been satisfactorily answered by the courts and no general rule has been laid down; this is because the party calling such a witness to testify generally pays him for his services in order that such witness may not prove hostile to him at the trial, and

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¹As to the right of the court to compel a party to submit to a physical examination, see N. Y. Code of Civil Procedure Secs. 870-886; *Lyon v. Manhattan R. Co.*, 142 N. Y. 298; *Shaw v. Van Renselair*, 60 How. Pr. 143. As to qualifications of physicians or dentists conducting such examination, see *Atch.*, etc., R. Co. v. *Thul*, 29 Kan. 466; *Lawrence v. Samuels*, 20 Misc., 15. As to conduct of the examination, see *McGovern v. Hope*, 42 Atl. (N. J.) 830; *Hess v. Lake Shore*, etc., R. Co., 7 Pa. Co. Ct. 967. That the expense of such examination must be borne by the party at whose instance it is made, see *Richmond*, etc., R. Co. v. *Childress*, 82 Ga. 722. And as to exhibition of the injuries themselves to the jury, see *Lac's v. James Everard's Breweries*, 61 App. Div. 431 (Reversed on other grounds in 170 N. Y. 444).

²*Tatum v. Mohr*, 21 Akr. 349; *Wharton Med. Jur.* 77.

³*Delafield v. Parish*, 23 N. Y. 115; *Carpenter v. Calvert*, 83 Ill., 62; *Grant v. Stamler*, 39 Atl. (N. J.) 890; *Matter of Phillips*, 34 Misc. 442; *McQuade v. Met. St. R. Co.*, 84 App. Div. 637.

hence the cases on this question are but few. An expert witness, like an ordinary witness is, of course, entitled to the usual witness fee¹; and he may generally be compelled to testify, though he cannot be compelled to make special preparation for giving expert testimony.² In any event, if a physician or a dentist is subpoenaed as a witness, and is tendered the usual witness fee,³ he should attend and testify, even though he does not expect to receive extra compensation from the party calling him.

I have attempted, in the few lines preceding, to give a brief outline of the subject of Expert and Opinion Evidence so far as it affects the dentist when called upon to testify in court as an expert. This topic, however, is perhaps of more direct importance to the lawyer than to the dentist, as it is plainly but a branch of the Law of Evidence, and finds its greatest value as a means of discovering, uncovering or deciding facts at issue in a given cause. Let us now, therefore, turn to that portion of Dental Jurisprudence which more vitally concerns the practising dentist, as such, in his everyday life, namely: (1) his rights and their protection or enforcement by the law; and (2) the duties and liabilities imposed on him.

The dentist, just as any one else, has certain rights which may be called "*absolute rights*," which the law will protect and enforce against all the world. Thus, there is the right to be protected against assaults and batteries; there is the right to remain secure in one's possessions; there is the right to protection of one's good or reputation. Thus, one who utters words which tend to disparage one in his profession as a dentist render their utterer liable in an action for slander, even though no particular or co-called "*special*" damage be shown; the law presumes that some damage necessarily results from the nature of the words themselves.⁴

¹See 12 Am. & Eng. Encycl. of Law, 493 et seq.; *McPherson v. Cheadell*, 24 Wendell, 15.

²*People v. Montgomery*, 13 Abb. Pr. (n.s.) 27; see *People v. Cayuga County*, 22 Misc. 616; but see *Brown v. Traveler's, etc. Ins. Co.*, 26 App. Div. 544 where, *semble*, that the party calling an expert witness is liable for extra compensation.

³See N. Y. Code of Civil Procedure Secs. 852-869. As to privileged communications, it has been held under the Michigan statute providing that communications to persons authorized to practise medicine or surgeons are privileged, and that such persons cannot on a trial disclose confidential communications, that the statute relates only to general practitioners, and that dentists are not surgeons within the meaning of the Act. *People v. DeFrance*, 104 Mich. 563. See N. Y. Code of Civil Procedure Sec. 832; and see note in 30 Abb. N. C. 84.

⁴*Thrall v. Smiley*, 9 Cal. 529. But words charging a dentist with incapacity merely in the treatment of a particular case are not actionable *per se*, and require proof of some special damage. *Grenning v. Appleton*, 58 How. Pr. 471; unless the words, although they refer only to the treatment of a particular case, necessarily impute gross ignorance, want

The other class of rights recognized by the law are the so-called "relative rights," which are those rights which arise by virtue of some agreement or contract between the parties concerned; and such agreement may be either one expressly made by the parties, or it may be implied by the law as arising from certain acts done by them. In either case, the remedy of the law is complete and adequate. Thus, the dentist may agree with his patient before he renders his services or begins the work contracted for, that a certain sum shall be his fee or compensation. In that event, the Court will, in the absence of deceit or unfair dealing, not go into the questions either of adequacy of the charge or its reasonableness, and will give the dentist judgment for the contract price of the services. It is, therefore, highly desirable in order to prevent future disputes, that the dentist and patient agree on some definite sum as the compensation of the former, before the services have been performed.

But it frequently happens that for some reason or other no such agreement has been made. In that event the law will raise a so-called implied obligation on the part of the patient to pay for the services their reasonable value. The request for such services, followed by their acceptance and performance of itself implies a promise to pay what they are worth.¹ In such cases the following factors are considered as determining the value of the service: 1. The ordinary and reasonable price; i. e., the customary charges in the same locality.² 2. The learning and skill of the physician or dentist.³ 3. The nature and difficulty of the case.⁴ 4. The number of visits.⁵ The financial condition of the patient need not be considered.⁶ But the right to compensation is not dependent upon success.⁷ And there can be no

of skill, or want of integrity, *Cruikshank v. Gordon*, 118 N. Y. 178; *Lynde v. Johnson*, 39 Hun. 12, Dentists are exempt from jury service in New York. This is provided for expressly in the N. Y. Code of Civil Procedure Secs. 1030, 1081 and 1127. But this is not so in some other states. See *State v. Fisher*, 119 No. 353. See on the question as to whether dentist's instruments and tools are exempt from execution, N. Y. Code Secs. 1390, 1391 and *Robinson's Case*, 3 Abb. 466.

¹*Ely v. Wilbur*, 49 N. J. L. 685; *Perry v. Woodbury*, 44 N. Y. St. Rep. 287. As to liability of third persons for services rendered to another at their request, see *Perry v. Woodbury* (supra), and *Ross v. Hardin*, 79 N. Y. 84.

²*Jonas v. King*, 81 Ala. 285. Expert testimony is admissible on this point, *MacEvitt v. Maass*, 64 App. Div. 382.

³*Mays v. Hogan*, 4 Texas, 26.

⁴*Kendall v. Grey*, 2 Hilton (N. Y.) 300.

⁵*Elmer v. Machey*, 186 Ill. 297.

⁶*Lange v. Kearney*, 4 N. Y. Supplement 15; but *contra* *Haley's Succession* 50 La. Ann. 840.

⁷*Langolf v. Pfomer*, 2 Phila. 17.

recovery either on an express contract or on an implied one where the dentist has not been duly licensed and has not complied with the ordinary statutory requirements as to registration, etc.¹

We have thus briefly discussed the rights of the dentist against his patient and the patient's duty to pay for the services rendered, either the contract price or their reasonable worth. Let us now turn to the question of the duties imposed on the dentist by the law: What has the patient the right to expect and just what does the dentist owe his patient? These questions may properly be classified under the title "Malpractice." We may define malpractice as "the bad professional treatment of disease or bodily injury, from reprehensible ignorance or carelessness, or with criminal intent."²

A dentist offering his services in the public as such, impliedly contracts that he possesses and will use, in the treatment of his patients, a reasonable degree of skill and learning, and that he will exercise reasonable care and exert his best judgment to bring about a good result. Failure to perform this contract renders him liable in damages for injuries caused to the patient thereby.³ The standard by which the degree of care, skill and diligence required is to be determined is not the highest, however, but is simply the care, skill, diligence which are ordinarily possessed by the average of the members of the profession to good standing in similar localities, regard also being had to the state of the medical and dental sciences at the time.⁴ He need not have the highest attainments in his profession.⁵ Merely "average care" is required; the dentist is not an insurer of success.⁶ That is, reasonable care depends largely on the circumstances of the particular case and upon the duty to be performed, the degree of care requisite being in proportion to the nature of the case.⁷ The same degree of skill and the same measure of duty are owed by the practitioner to the patient whom he is treating gratuitously as to one who pays.⁸ This duty is not limited merely to injuries

¹*Accetta v. Zupa*, 54 App. Div. 33. As to statutory requirements relating to examination, admission and registration, etc., see *post*, pp. 15 et seq. and notes. See N. Y. Public Health Law Sec. 196 (as amended L. 1916 ch. 129).

²See 22 Am. & Eng. Encyc. of Law 798; Century Dictionary; *Granger v. Still*, 187 Mo. 197.

³*Simonds v. Henry*, 39 Me. 155.

⁴*Pike v. Honsinger*, 155 N. Y. 203; *Wood v. Wyeth*, 106 App. Div. 1. *Rogers v. Voorhees* (decided N. Y. App. Div. Fed. 1916), reported N. Y. Law Journal, Feb. 19, 1916.

⁵*Simonds v. Henry*, 39 Me. 155. Thus a dentist using chloroform as an anaesthetic agent is only bound to look to the natural and probable effects of its use, *Bogle v. Winslow*, 5 Phila. (Pa.) 136.

⁶*MacKenzie v. Carman*, 103 App. Div. 246.

⁷*Graham v. Gantier*, 21 Tex. 111.

⁸*DuBois v. Decker*, 130 N. Y. 325.

arising from improper treatment, but the dentist or physician is liable also if he fails, through want of care or skill, to diagnose the case correctly.¹

Where a physician or dentist undertakes a case he agrees by implication to continue attendance so long as treatment is required. He may not suddenly refuse to continue, leaving the work half done. If he intends to quit he must first give sufficient notice to enable his patient to obtain another physician or dentist.² If the practitioner finds he is not competent to continue the case alone, it becomes his immediate duty to recommend the employment of another, or to use his best judgment as to the advisability of consulting with other physicians or dentists.³

But a practising dentist pursuing ordinary care is not chargeable for an honest mistake or error of judgment, where there is ground for reasonable doubt as to the practice to be pursued.⁴ But a person who is not possessed of the requisite qualifications in his profession cannot claim exemption on the ground of error of judgment.⁵ Nor, in any case, can such exemption be extended to cover gross errors sufficient to show want of due care.⁶

A dentist may not experiment on his patients; if he attempts to do so he becomes liable for any injuries resulting therefrom.⁷ And a dentist is liable also for injuries resulting to his patient from the malpractice or negligence of his agent, assistant or apprentice.⁸

But a dentist is not answerable in damages to a patient whose own negligence is the direct cause of the injury. An instance of this is the patient's failure to obey his instructions.⁹

As to the liability of the dentist to criminal prosecution for malpractice, the statutes of the various states generally provide that where

¹Logan v. Field, 75 Mo. App. 594.

²Gerkin v. Plimpton, 62 App. Div. 35.

³Mallen v. Boynton, 132 Mass. 443; Potter v. Warner, 91 Pa. St. 362.

⁴DuBois v. Decker, 130 N. Y. 325.

⁵Carpenter v. Blake, 50 N. Y. 696.

⁶See note 4, above.

⁷Pike v. Honsinger, 155 N. Y. 203.

⁸Landon v. Humphrey, 9 Conn. 209; Tish v. Walker, 5 Chic. Dec., 725.

⁹Becker v. Jaminski, 27 Abb. N. C. 45; Carpenter v. Blake, 75 N. Y. 12. A patient may recover damages for the aggravation of an injury by acting on a dentist's advice. Merwin v. Cory, 145 Cal. 573. It has been held in New York that a judgment in favor of a physician is an action against his patient for the value of his services is a bar to a subsequent action by the patient for damages caused by his malpractice, i. e., such malpractice must either be set up by the patient as a defense or counterclaim in the action brought by the physician or dentist, or the action by the patient must be brought before payment of the bill, such payment constituting a waiver by the patient. Blair v. Bartlett, 75 N. Y. 150.

death results from the administration of a drug by an intoxicated physician or surgeon such physician or surgeon is guilty of the crime of Manslaughter in the second degree.¹

(To be continued)

PREPAREDNESS LEAGUE OF AMERICAN DENTISTS

WHAT THE LEAGUE HAS DONE

1. United the Dental Profession for a Definite Purpose.
2. An important factor in making a New Profession.
3. Helped organize the Dental Profession for war service.
4. Provided a medium through which the Surgeon General's office could utilize the services of the dentists of the United States.
5. League members have gratuitously cared for the teeth of more than 50,000 recruits and conscripts, a large percentage of whom were rejected because of dental defects.
6. The League, through the efforts of two of its officers, Dr. C. F. Ash and Lieutenant Heckard, inaugurated the great drive, now sweeping over the United States, to make all accepted drafted men dentally fit to battle for our country.
7. The work of the League, therefore, has done much to improve and sustain the health of our fighting forces, thereby preventing untold suffering and assuring immeasurable comfort to our soldiers.
8. The League has given every member a chance to do his "bit," thus engendering greater patriotism and a desire to do more for our great cause.
9. More than one hundred sectional units have been formed throughout the country as nuclei for organized work and the study of war oral and dental surgery.
10. Formulated an amplified study course, with special reference to present needs, and hundreds of lectures and clinics have been given.
11. Has been a means of creating and supplying the desire for knowledge and improvement among thousands of members of our profession throughout the land.
12. Originated the idea and plans (Cleveland Unit, Ohio Division, Sept., 1916) for providing Motor Dental Ambulances for use in the war zone.
13. Our committee has standardized style and equipment for ambulances, and manufacture is about to begin.

¹See N. Y. Penal Law, Sec. 1052 subd. 3. See *Commonwealth v. Pierce*, 138 Mass. 165.

14. Dr. C. F. Ash has received for the League a subscription of \$10,000; the Western Dental College and Kansas City members are raising \$10,000. California and other states are raising funds, also, for dental ambulances.

15. The League proved a most important factor in helping to fill the Dental Section of the Officers' Reserve Corps, several hundred applications passing directly through our National Headquarters.

16. The League has stimulated fraternal spirit, one object of which is to provide for the care of the practices of its members who have entered their country's service.

17. Concerted action through our organized endeavors has done much toward creating sentiment for favorable legislation. This influence has been recently demonstrated.

18. The League has been instrumental in bringing out hundreds of young men hitherto comparatively unknown.

19. The Liberty Loan Campaign has received material assistance from the League through the work of the local units.

20. Buffalo unit supplied \$1,200.00 equipment for Base Hospital No. 23.

21. In short, the League has for twenty-one months been preparing our profession in every way to render our best service during the period of the war.

The League merits your support—join now. Headquarters:—
3 Professional Building, 131 Allen Street, Buffalo, N. Y.

Editor DENTAL DIGEST:

In answer to M. A. M. in the October DIGEST, page 644, I want to suggest that he should use conductive anesthesia to remove pulp from third molar. If he is not instructed in conductive anesthesia just use a local anesthetic. As for extraction be careful to make deep injections around the root. The probable cause of the trouble is a pulp stone.

Very truly yours,

B. C. TAYLOR, D.D.S.



ORTHODONTIA

SCIENCE VERSUS EMPIRICISM IN ORTHODONTIA

BY FREDERICK LESTER STANTON, D.D.S., NEW YORK

EIGHTH PAPER

Dr. E. A. Bogue suggested the following experiment, the object being to test the accuracy of engineering methods in predetermining the occlusal arch by measuring and surveying the teeth. Dr. Bogue had purchased in Paris a set of thirty-two natural teeth. The dealer had assured Dr. Bogue these teeth had been taken from one skull and that the dental arches were normal and regular.

Dr. Bogue suggested that these teeth be measured and surveyed by our dental surveying apparatus, the occlusal arch to be determined by an engineer using our arch determining instrument, the Occlusograph. It was stipulated that the engineer could not arrange the teeth by mounting in wax on an articulator or otherwise assemble them. In other words the same technique was to be followed as we employ in determining the occlusal arch in orthodontic cases. When the maps of occlusion were made we were to give the maps and the teeth to a man versed in anatomical occlusion. The prosthodontist selected was Dr. E. S. Ulsaver. He was asked to set the teeth on the same dimensions as the maps. Our readers will realize the severity of this test.

The only arrangement of these teeth which would **resemble** normal occlusion, was one in which a lower incisor was removed. With this tooth removed a fair occlusion of the molars and bicuspid was obtained, with a rather flat curvature in the incisal region. This map of pseudo-occlusion was then given to Dr. Ulsaver together with the thirty-two teeth, and he was requested to set them on an articulator, reproducing the form and dimensions of the occlusal arch as shown on the maps (leaving out one lower incisor). The results of Dr. Ulsaver's work are shown in the illustrations.

Fig. 47 Pseudo-occlusion of sixteen upper teeth with fifteen lower teeth. The thirty-two natural teeth were measured and treated by the engineer as if they were plaster teeth on a model of malocclusion for which he was predetermining the occlusal arch. By means of the arch

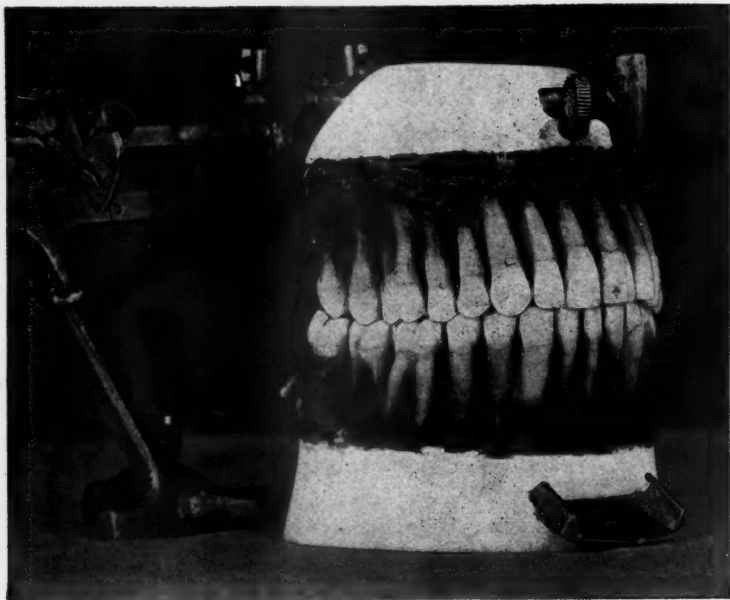


Fig. 47

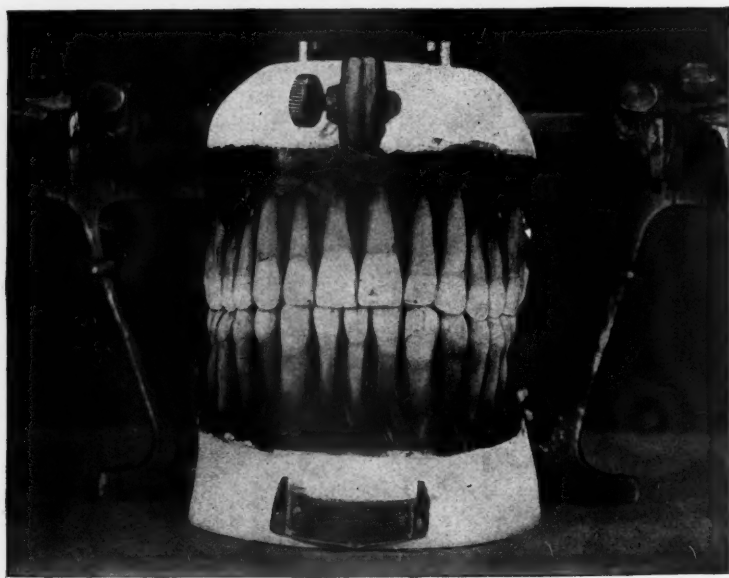


Fig. 48

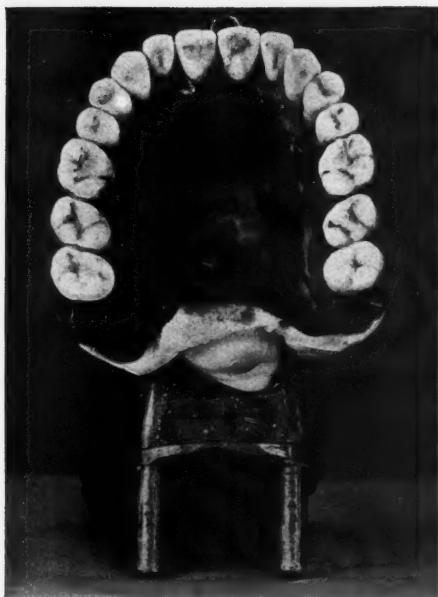


Fig. 49 A—Occlusal view of upper arch form

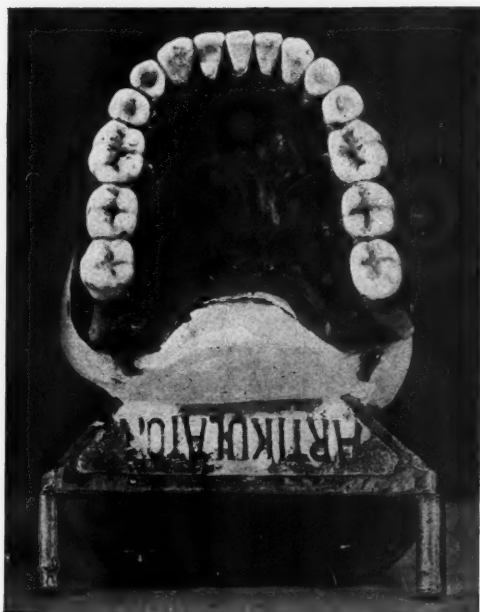


Fig. 49 B—Occlusal view of lower arch form

determining instrument, the Occlusograph, the engineer soon found that it was impossible to have occlusion with this set of teeth. The tooth material of the lower set was so disharmonious to the upper that no curvature could be selected for the two arches that would permit of occlusion when they were brought together. **These thirty-two teeth** (which were sold to Dr. Bogue, on the representation that they were taken from the same skull and in a normal arrangement) **either were taken from different skulls or must have been in pronounced malocclusion.**

Fig. 48. Front view of Fig. 47 showing overbite, one lower incisor missing. (Note how accurately the three incisors fill the gap between the lower cuspids).

Fig. 49. Occlusal view showing the upper and lower arch forms.

The readers of this series of articles will appreciate this interesting and rigorous test suggested by Dr. Bogue.

In a future article we will treat this set of teeth (arranged by Dr. Ulsaver in his attempt to reproduce the arch as designed by the engineer), as we should a model representing a dentist's attempts to establish the form and dimensions of the arches of teeth in a living patient's mouth to conform to the predetermined maps. Then we will publish the engineer's map of occlusion as given to Dr. Ulsaver. We will then show a map of the teeth made by surveying the teeth as arranged in Fig. 49. Then the maps as made by the engineer will be contrasted with the maps made from Dr. Ulsaver's arrangement of the teeth in the articulator. In actual practice this is known as a progress survey, and is one of the most valuable services to the dentist doing orthodontia, for to know when his work is finished or needs but a slight adjustment, is one of the most difficult parts of orthodontia.

After making this progress survey we will have **Dr. Ulsaver finish his treatment of Dr. Bogue's thirty-one natural teeth**, and make the slight readjustments necessary to place these teeth on the **exact arch form** as designed by the engineer.

A final survey will then be made and our readers will then know the accuracy with which the relative movements in orthodontia can be predetermined.

Of what practical value is this experiment? The vast majority of orthodontists believe that nature does not make mistakes in tooth sizes. Consequently they attempt in all mouths, without previous trial, to establish normal occlusion. **Dental engineering will forever explode this fallacious teaching** of the leading post-graduate schools and the text books must be altered to stop the useless attempt to establish normal occlusion in those individuals whose teeth are not susceptible of occlusion on account of the discrepancies in the sizes of the teeth.

OFFICE EXPERIENCES

[I shall be glad to have *bona fide* Experiences from dentists for this department, and for each experience accepted for publication, the DIGEST will send the writer a cheque for \$2.00. The articles need not be lengthy.—EDITOR.]

KEEP IN TOUCH WITH THE PARENTS

I have had two experiences in the last month which have taught me to communicate directly with the parents in regard to their children's work.

Case No. 1. I placed amalgam filling in the six year molar of a seven year old girl. Child returned a week later and said tooth had given slight pain. Quizzing convinced me that the trouble had not been serious so far, and I tried to avoid taking out pulp with aconite and iodine applications to the gum.

I had child return three times the first week and she reported that the tooth had not given the slightest pain. So I dismissed the case.

Three days later the mother called up to know why on earth I did not do something for their suffering child. That the tooth had been troubling her ever since it has been filled and that night after night they were up for an hour or more with the screaming little girl.

Investigation proved that I had (unfortunately) remarked that if the medicine on the gums did not make the tooth behave, I would have to take out the filling. And one of the child's playmates had told her that she had had to have a filling removed once and that it had been the most agonizing experience of her young life. So through fear of a like experience the child had deceived me as to the true condition of the tooth. The parents had waited for me to master the trouble and believing that the tooth was all right I was doing nothing.

Case No. 2. A month ago a fourteen year old boy came for the treating and filling of a central incisor. I told him to tell his parents that he had four bad cavities in his molars.

The boy returned declaring that his father had said that he could not afford to have the other work done.

I thought this was strange in a man of Mr. W.'s intelligence and

salary and I explained to the boy at great length the urgent necessity of the work and told him to talk to his father again.

The boy reported that his father had said he positively could not afford to have the work done at that time.

Yesterday the father came to see me, somewhat ruffled of temper.

"I direct you to put my boy's teeth in first class condition and in less than a month he is howling all night with toothache!"

"No wonder!" I exclaimed in indignation; "with half a dozen cavities in the boy's posterior teeth that you refused to have filled, what do you expect but toothache?"

A comparison of notes disclosed the fact that the boy had lied at both ends of the line.

To my mind a child's fear of pain in the dental chair makes it inadvisable to rely upon their word. *Keep in touch with the parents.*

G. H. M.

Editor DENTAL DIGEST:

Reading your office experience pages in the DIGEST recalled a rather humorous incident in my own practice.

About two days after I had inserted an amalgam filling in a lower left first molar for a gentlemen patient of a "spleenic" disposition, he came storming into my office, walked immediately into my operating room where I was busy with a lady patient and yelled: "That filling you put in my tooth the other day has come out and I have it in my pocket." I stepped away from the chair and asked him into the waiting room where he produced the filling (?) nicely wrapped in tissue paper. It was undoubtedly metal and of a spherical shape, so I immediately became suspicious that it was not amalgam or any part of a filling.

Examination of tooth showed the filling in the proper place so I took the metal to the laboratory and held it over a Bunsen and it melted very readily. Suspecting that it was solder (soft) I tried soldering together two pieces of copper band material. It worked like a charm.

I returned to the waiting room and after I had questioned the patient a short time found out that he was eating canned corn when the filling had dropped out as he thought.

I concluded the solder was from the can of corn as one often finds those little beads of solder that drop through the hole in cover when the can is sealed.

I explained to him my deductions and admonished him to examine his teeth the next time he thought he had lost a filling.

Yours very truly,

H. E. S.

THE CHEEKIEST OF ALL!

I was called to the phone early one Sunday morning, the party at other end of line having suffered all night with toothache and very anxious for me to come down immediately. Being nearly two miles from my office and not having had my breakfast I replied that I would be willing to treat him, but that it would take some time for me to reach office. He then said he would come and get me in his auto and bring me home. In the meantime I ate my breakfast and was ready for him when he arrived. The ride to office was none too pleasant, as it was a cool foggy morning and auto had neither windshield nor top.

An hour was spent in removing pulp of an offending molar and appointment made for following day, for further treatment—Fee charged \$5.00.

Patient never returned for treatment and two statements received no reply, so my assistant called upon him and he tendered her a check for \$3.00 and a receipted bill for \$2.00 (Two auto rides).

Rather than push the case I thought best to accept settlement and for my end of it I wrote an account of it to man for whom he works, also the Board of Trade and our Dental Society.

It has afforded my friends some enjoyment at my expense. Though I, too, value the experience and receipt at more than \$2.00 and it may be interesting to other dentists to know, that should a similar case come to myself (or them) I certainly would collect while at office and advise them to do so.

Very truly yours,

M. C. E., D.D.S.

Editor DENTAL DIGEST:

In answer to H. M. D., D.D.S., of Newark, Oklahoma.—Go into second and use a little more gas and you will surely get "Over the Top." It is too bad to go home just as the fish are about to bite. When I was a kid I bagged many a covey after the swell blighters got chilly feet and beat it for the cosey corners. I knew a swell kid onest that studied out of a book how to, and Par got him the best sort of tackle and he megaphoned his prowess until I had earache. By and by we went fishing and before that kid had been fishing half an hour he had tied up the scenery, used up his bait, got disgusted and dug out to punch his meal ticket while we stayed on with our cut poles and home-made tackle and we were rewarded with a good mess.

I did not begin to live until I was thirty-three—that was the year I was married. *You* want to quit. Young man, don't never discourage nobody.

S. C. E. C.

Editor DENTAL DIGEST:

The following is a comment on H. M. D.'s answer to R. H. T.'s pleas for suggestions on how to make good in a city of 20,000 population.

There can be no doubt that the letter written by H. M. D. was perpetrated during a fine sense of pessimism. He must have been extremely peeved, possibly by the fact that his competitor is sporting a nice little town car of some kind and has grit enough not to lay down and cry quits.

I noticed that he advises R. H. T. to invest in a peanut stand. How can he make good at that if he cannot make good as a dentist? Something is radically wrong with the man, not the profession of Dentistry.

To do justice to R. H. T. we must give him credit for having the courage to ask advice and for not believing he is the whole encyclopedia of Dental Lore.

Making a success of business in a town of 20,000 is not a bit more difficult than in a small place of 1,500 or 2,000. It all depends on how you go out after the business. One soon gets the reputation of being a good fellow or a grouch, a snob or a boob. To make good you must be a good mixer but do it within your income.

Any dentist can save money on \$2,000 a year and earn less.

The best thing for a self-admitted failure (God help them) is to sit down and look things squarely in the face and admit to themselves, no matter how painful their short comings. Then finally resolve to live in the future on the profits of the mistakes made in the past.

The reason for many dentists and physicians being financial failures, is an insane desire to keep up with the Joneses; in plain words living beyond their incomes.

If R. H. T. desires to make good in a 20,000 town let him learn to mix well.

Live within a certain amount.

Save part of what is made.

Pay promptly all dental supplies and other bills. Do this cheerfully; it is a reputation builder. Never say die, or I cannot, and R. H. T. or H. M. D. will step out of their corners for the last round, a bit groggy, but with one good old wallop with either mit for old man failure.

After all this, if they fail in dentistry they would fail as bootblacks, and would surely burn the peanuts.

D. L. M.

DIETETICS AND HEALTH

THE NEW PUBLIC HEALTH*

W. S. RANKIN, M.D.

SECRETARY, NORTH CAROLINA STATE BOARD OF HEALTH
RALEIGH, N. C.

My ambitious subject, the new public health, is not of my own choosing. A recent book has been devoted to a discussion of this subject. In attempting to deal with a subject of such vast proportions in the short period of time at my disposal, I shall be compelled to limit myself to brief references to those recent changes in point of view, new interests, and new proposals which seem to offer the biggest rewards for any attention that may be given to them.

GROSS AND ANALYTIC CONCEPTIONS OF THE HEALTH PROBLEM

Our former rather gross conception of the health problem is becoming more exact, more analytic. We are learning that the health problem has an anatomy; it can be cut up, dissected into a number of independent, smaller health problems or health units. The treatment one prescribes is profoundly influenced by one's point of view. It depends, namely, on whether one has the gross or the anatomic conception of the health problem. With the gross conception one prescribes general treatment and uses the shotgun prescription. His treatment is like the treatment of one who prescribes a physician for the sick, for he prescribes a health office or health officer for the health problem; as, for example, a national department of health for the national health problem, and a whole time county health officer for the county health problem. With the anatomic conception one prescribes specific treatment, a definite plan for each separate health unit. The health officer with an exact conception of the health problem in treating a sick, social organism does not put all of the treatment in one prescription, realizing

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

that in aiming at everything he may hit nothing, and incidentally turn his patient's stomach. To-day is the day of specific therapeutics, both for the individual and for the public. Specific therapeutics demand exact knowledge.

FEDERAL, STATE, AND COUNTY COÖPERATION IN FINANCING AND PLANNING
RURAL HEALTH WORK

Two departments of the national government, those of agriculture and of commerce, have established a plan of financial and supervisory participation with state and county governments in local or county work in which all three participating governments have a common interest. Under this plan the federal government makes an initial appropriation of from \$4,000,000 to \$25,000,000 annually. This appropriation is apportioned to the states on the basis of population and square mile area, and each state apportionment becomes available when the state appropriates an equal sum. The state, in its turn, apportions the combined federal and state funds to those countries that will appropriate a supplementary fund, the amount of which the state determines. Note that all the appropriations, federal, state and county, are conditioned and are available for use only when two other appropriations are made. Such appropriations are comparatively easy to secure, one of the three contributors inducing the other two to contribute. In addition to providing funds for local work in which all three governments have a common interest, this plan offers another great advantage; before any county can receive state or federal aid, its plan of work must be approved by both state and federal participants. In this way the federal government and the state government become clearing houses of experience in formulating and directing local work.

This principle of governmental coöperation which the Department of Agriculture and the Department of Commerce have established for county agricultural work and county highway construction should be quickly extended to include county health work. A federal appropriation of a million dollars annually for rural health work, to be apportioned among the states on a basis of rural population and square mile area, and made available to the state appropriating a like sum, would give the average state \$40,000 annually for rural health work. Then if the state apportioned the \$40,000 to those counties that would match the combined federal and state fund dollar for dollar, the total fund in the state for rural health work would amount to \$80,000 annually. Moreover, the conditions of the apportionments, in requiring the plan of rural health work to be approved by all three participating governments, would insure the highest degree of efficiency. In a recent con-

ference of secretaries of state and provincial boards of health, appropriate steps were taken to secure from Congress the extension of the plan of financial and supervisory coöperation of governments to include in addition to agriculture and good roads, rural health work.

INDUSTRIAL HYGIENE

Countries epitomize the course of civilization in being first agricultural and then, with an accumulation of raw products, becoming industrial. Our country is rapidly becoming an industrial nation. Multiplication of industries means that competition is sharpened by every new wheel that turns. Competition demands the elimination of waste.

THE NEW IDEAL: VITAL QUALITY

In health work the old ideal was quantitative—more life, lower death rates, greater longevity. The new ideal will be qualitative—greater human efficiency, a better quality of being.

There was a time when mere quantity of service counted for more than it does to-day. Then we had a work day of twelve hours and a school day of eight or nine hours. Now we know that a man's ability to produce and a child's ability to learn is greater with an eight hour work day and a five hour school day than with the former longer hours. The time may come when we shall find that a life adjusted to a fifty year time table makes greater mileage on the energy consumed than does a life adjusted to a seventy year time table.

Quantity of life and quality of life are related, but are not identical. If we provide for quantity we do not necessarily insure quality. If, on the other hand, we provide for quality of being, we take care of quantity so far as it deserves to be cared for. With the old ideal of vital quantity, those diseases that have large mortalities and high degrees of preventability tended to absorb our thought and energy. With the new ideal of vital quality, we shall be not less mindful of those diseases that directly affect vital quantity, but we shall be more mindful of those diseases that play havoc with vital quality. The light hookworm infection; twenty to fifty parasites; the neutral malarial infection; the chronic suppurating gums; the chronic constipation; the grumbling gallstones; the nagging piles; the old, slightly lacerated cervix; the improperly balanced ration; the excess of nicotin; the improperly ordered schedule of rest and play and work; these, and their like, gauge the severity of their attack on vitality by what the vital forces will tolerate without striking back. These, like the small tax gradually increased over long years, take from a careless people a total of efficiency, of vital quality, of life,

that, could we but compare it with our account against tuberculosis, typhoid fever, and their like, would make the last named diseases appear of far less relative importance. Our vital losses, like our financial losses, are in dribblets, pennies, nickles, dimes, an occasional quarter. If these little drafts on efficiency, on vital quality, the individual items too small to add from day to day, were totaled at will-making time, our conception of the relative importance of diseases would undergo a rather remarkable revision. Periodic examination of adults, as carried out by the Life Extension Institute; medical inspection of school children; school lunches; the accentuation of the fight on diseases that cripple rather than kill, hookworm and malaria; the oral hygiene movement; the mental hygiene movement; the propaganda of the eugenist; the increased interest in the regulation of working hours, in dietetics, are all aimed not primarily at death rate reduction and longevity extension, quantity, but at the new ideal, a finer quality of being. For

We live in deeds, not years; in thoughts, not breaths;
In feelings, not in figures on a dial;
We should count time by heart throbs. He most lives
Who thinks most, feels the noblest, acts the best,—

Journal American Medical Association.

BANANA FLOUR SUBSTITUTE FOR WHEAT FLOUR

(CONSUL HENRY D. BAKER, TRINIDAD, BRITISH WEST INDIES, MAY 23)

The Horticultural Club of Trinidad has arranged to have loaves of bread baked from banana flour, prepared at local bakeries and offered for public sale in order that the people may have an opportunity to know that a most palatable bread can be made from banana flour.

At a recent meeting of this club, samples of banana flour and bread were exhibited and the method of preparation described. It was explained that the bananas from which the flour and bread were made had been taken from trees only five days previously, the "silk fig" small variety of bananas producing the best results.

The process was described as follows: Full-grown green bananas should be selected. Peel, slice and dry quickly, preferably on a galvanized sheet, then grind in ordinary corn mill. From 63 pounds of green bananas, 16½ pounds of flour had been obtained in the specimens shown. The bread, which was very palatable, had been made from two parts of banana flour and one part of wheat flour. The banana flour could also be used as a substitute for oatmeal porridge and also for making puddings.

Reckoning the cost of the bananas used in the above experiment at thirty cents, and the labor for preparing into flour at twenty cents,

it had cost fifty cents, equal to about three cents per pound. The London *Lancet* was quoted as stating that banana flour is more digestible and contains more nitrogenous matter than wheat flour; also it could keep for a considerable length of time.

It was also stated at the meeting that plantains could be made into flour in the same manner, and such flour was very nourishing for children. Reference was made to the fact that such flour was exported from British Guiana, and was known as "bannanine."—*The Dental Summary*.

RHEUMATISM A PREVENTABLE DISEASE

PUS POISONING FROM TEETH, GUMS, OR TONSILS OFTEN THE SOURCE OF INFECTION

BY EDWARD J. WOOD, M.D., WILMINGTON

The following article is taken from *The Health Bulletin* published by the North Carolina State Board of Health. It is refreshing to note the growing appreciation of the value of coöperation between the physician and the dentist. It is possible that some of your medical friends may be benefited by having this article brought to their attention.

We are indebted to Dr. Maurice A. Waddell, Fair Bluff, N. C., for the opportunity of presenting this article to our readers.—EDITOR.

By focal infection is meant an accumulation of pus somewhere in the body which is discharged into the circulation, producing certain damaging changes to vulnerable parts. All tissues of the body are not equally resistant to this pus poisoning. The parts which are more apt to suffer are the lining membrane of the heart, including the valves, the kidneys, and the joints. Recently it has been found that the heart muscle is often dangerously affected by infections of this kind without producing any visible signs for the doctor to observe until the damage is beyond repair.

ONE CURE FOR RHEUMATISM

Dr. Osler said only a few years ago that rheumatism was a reproach to the medical profession because no progress had been made in the discovery of its cause; hence, no remedy could be intelligently applied. But to-day any case of rheumatism calls for a searching investigation on the part of the physician, for there is locked up somewhere in the body one or more pockets of pus which must be removed to prevent a further rheumatic involvement and also to cure the present trouble. All of the hitherto used remedies for rheumatism only relieved and never cured. There can be only one cure, and that calls possibly for the combined attack of a good nose and throat specialist, a modern dentist who works for a higher purpose than the outward appearance of the teeth and who will intelligently use the help of the X-ray when

needed, and a conscientious physician who is not content to have as the rule of professional activity, "What is to be must be." If the physician does his part the patient will be directed to the proper dentist and the proper nose and throat man, their findings will be brought together in an intelligent manner and the patient will find relief.

The reader will be impressed with the expensive nature of this investigation. If the patient lives in the country, it becomes necessary to go to the city for the X-ray part of the work, at least. While it is costly, it is much cheaper than the numerous secret remedies advertised, and which will only relieve pain at best, and that often at the expense of kidney irritation or heart depression.

TOOTHBRUSH AND DENTIST BEST PREVENTIVES

It would be far better to prevent all of this trouble, and it can be in the next generation, by a little education, which had better be done in the public schools. The one preventive measure above all others is the use of the toothbrush. Like all other things, the use of the toothbrush must be made carefully and thoroughly and the child must not be expected to have been born with a knowledge of its use. Many people think that the use of a toothbrush is a part of respectability. While this may be true, from a medical point of view, the average toothbrush used in my practice is almost worse than nothing at all. The toothbrush has only a limited life, and it is worse than useless after it is worn out. Again a toothbrush to retain its stiffness must be dried out between usings, and should, therefore, not be kept in a toothbrush container. Each individual should have two or more of these useful articles in constant use and should be careful to use them in rotation in order to favor drying and a return of the normal stiffness of the bristles. But, in spite of all this, the individual must not expect to keep the mouth normal without the help of a competent, conscientious, patient dentist, who is not too busy or too prosperous to have time to practise preventive dentistry. Everyone should visit such a dentist every three or six months and have him carefully examine *every* tooth. If there are no cavities, he will, at least, clean the teeth of the deposit known commonly as tartar, which cannot be removed except with a sharp instrument, which must be applied skilfully even below the gum. This is sometimes called scaling. If the teeth are kept dentally clean by this scaling process, as deep down as the dentist finds necessary, pyorrhea or Riggs' disease will soon become a negligible factor. The idea in the minds of the laity that the use of the ipecac preparations, as emetine, by the mouth or hypodermically will prevent and cure this gum condition is very fallacious. Without the dental cleaning of the

teeth such a drug is entirely wasted and should never be used except by the dentist's advice as an aid to what he will do with his instruments.

As a physician it is now my custom to begin all examinations with an examination of the teeth. It is often a very embarrassing duty to have to tell intelligent patients that their mouths are dirty, uncared for by themselves, and needing dental treatment. It is surprising to find how few well dressed people are acquainted with the personal touch of the toothbrush.

TONSILS OFTEN SOURCE OF INFECTION

The next important focus of this kind of infection is the tonsils. Many tonsils that apparently are normal or that cannot be seen on the ordinary examination are "submerged," and when drawn out by the throat specialist's instrument are found to be exuding pus. Such tonsils probably cause more trouble than the large tonsils, which are usually removed. A case recently under my care was strongly suspected of tuberculosis, but after the removal of the tonsils the little fever immediately ceased and the patient is now well. Tonsils are very important in any study of the source of rheumatism, heart disease, or kidney disease. I recently had under my care two young women with acute Bright's disease which had its origin in infection of the tonsils.

There are other cavities in the head which become infected, especially after colds, which may be the sources of focal infections and require expert attention. Anything but the best attention in such cases is worse than useless. Fortunately for most of us this is the least common source of trouble. It emphasizes the real need for a more thoughtful consideration of the danger of colds. Colds lower the resistance and prepare the way for many infections. Many focal infections would be prevented if we would protect ourselves from colds.

There are other sources of focal infection to be found in certain cases, but these cannot concern us here except in a general way. The public must learn that rheumatism is a preventable disease; that the doctor must find the focus or direct them to some place where the investigation can be made; that the charge so often made that this new teaching is a fad, had better be suspended until a fair trial is made.

In conclusion, let me say that no single development in medicine and hygiene can rank in importance with this. It opens up a new field which will almost immediately increase the normal expectation of life. By this means it is reasonable to expect a marked decrease in rheumatism, in heart disease, in Bright's disease, and in other conditions. Many cases of neurasthenia or nervous prostration are curable by this means and still more cases of neuralgia and eye strain cease to exist after the patient has been consciously studied in this way.

DENTAL ECONOMICS

A HEART TO HEART TALK WITH "H. M. D."

When I read your article in the October DENTAL DIGEST I made up my mind that you should be "labored with." Your atmospheric surroundings are doubtless of a deep indigo hue and thick enough to slice. These conditions are generally self-created—in your case palpably so.

I propose to hand you a friendly talk, straight from the shoulder and I hope you will accept it in the same spirit in which it is given.

It is human nature for one to look for a "goat" when things fail to break right, or when one has not measured up to one's expectations. It is consoling to shift the responsibility and even indulge in a little self pity. This, I take it, is your position. You are blaming dentistry as a calling for your personal lack of success.

Now there is nothing wrong with the "financial end" of dentistry—the trouble is with the financial end of you. The fundamental principle of any business is to charge a good price for your work and get it. Failure to do this accounts for the average dentist's lack of success.

I have no doubt as to your professional ability or business integrity—I do question your business methods. You probably lack the assurance to demand an adequate fee and get it—and thereby lose money and prestige. A man who hasn't the nerve to insist upon fair and prompt payment for his services must expect his professional ability to be rated on the same basis.

I quite agree with what you say in reference to the practices of certain shining lights in dentistry. I am thoroughly conversant with the "holier-than-thou" type who passes out a line of piffle concerning professional ethics and then proceeds to flim-flam his patients, knock his competitors and stick a knife into the struggling, inoffensive young dentist around the corner. Every week I see examples of the ultra-scientific work of the high-brows who read ponderous, rehashed articles before docile dental societies, and get away with the "bull" in-as-much as the clique of brother high-brows back them up and cough down any unregenerate

who has the temerity to discuss the inspired dope. If these gentlemen would forget the term "professional" and be content to practise dentistry upon an every-day "ethical" basis there would be fewer hypocrites in our calling. But this has nothing to do with our discussion.

Under proper business management dentistry offers an attractive field to the average, capable, energetic young man. Compared with medicine or law our profession is far more remunerative—but it must be conducted upon an individual business basis and not along the lines affected by the older professions. Be original, don't try to play the other fellow's game.

Physicians and lawyers sell their brains, they give their patients or clients nothing substantial, nothing concrete, and the layman, being educated to receive some substantial commodity for his money, often fails to appreciate that which he is receiving. The dentist sells first his professional brains; second, his mechanical constructive skill; third, an actual commodity, be it gold, rubber, or porcelain. The patient vaguely appreciates the value of brains, more keenly the value of manual labor, and most of all the intrinsic value of the commodity furnished—especially when it comprises the precious metal gold.

With the exception of aching or abscessed teeth the dentist is consulted in reference to conditions which have existed for some time, the treatment of which has been determined upon after due deliberation, and which are not particularly pressing—a few weeks more or less will make little difference. In view of these facts the dentist can deal with his patients on a more commercial basis than the physician or lawyer and still preserve certain professional traditions.

First of all he can insist upon cash payment—he stands ready to supply skill, labor, and material and the patient desiring this should be prepared to pay for same upon completion of work. If after weeks of anticipation the patient is not prepared to pay, how long will it take him to meet the bill after he has secured the goods? The incentive to pay will then be much less. Work which has been paid for is invariably more satisfactory than that upon which a debt rests. Again, your patient isn't compelled to chase around the block meeting you and is more likely to call when he requires future work.

A cash patient advises his friends as to your terms and when they consult you in turn (and they will) they expect to pay and are prepared. "Dr. Blank is a fine dentist, but works only for cash" is the best recommendation a man can have—it's a business builder. Reputable, honest people don't object to pay for good work; the successful business man or woman doesn't object to your cash method, providing you give them results—with them it is a customary business procedure. The

dead-beat and unbusinesslike individuals are the ones who clamor loudest for credit and are insulted when asked to pay for honest service. Once brought to your terms they are your greatest rooters and tout you all over town as a fine dentist who absolutely insists on the cash. They are proud of being forced to pay their bills—it's a novelty.

If you are receiving cash you are bound to hurry your work to a successful completion, you do not waste your time or the patient's, nor keep them running for interminable treatments. You expect to be paid for your time, the patient expects to pay you and realizes he is only being charged for necessary service. It's a mistake to turn your office into a roosting place for time-killers and semi-dead-heads; better have only one patient on exhibit, and that one a live-wire with money in his jeans.

The second step toward success consists in charging fees commensurate with services rendered—cost plus profit. Why should you accept inadequate fees simply because custom demands it, or because some old practitioner established a low fee bill years before? Why allow any man to standardize your value? The public is not to be blamed for its willingness to pay low fees if no one has the business backbone to charge it what the work is worth. Your valuation is self assessed, and if reasonable it will be accepted irrespective of the other fellow. Dentistry, like hats, is valued according to the price paid. Better to be called "high priced" than "very reasonable"—the latter term is always mentioned in an apologetic tone.

Not all the dentists are as poverty stricken as you would have us believe. Show me a competent dentist who has conducted his practice on a square, business basis and I will come pretty near showing you a successful and representative man; and these men are not all located in large cities either. I know of many such in small towns all over the country.

Like you I opened eight years ago—in New York City. I was a stranger without influence or pull. Since that time I have practised continuously in my original location and whatever success I have had I attribute to conscientious work and ordinary "hoss sense" business methods. I lay no claim to unusual professional attainments. At the time of opening my office my entire funds amounted to \$116.00—I have since been self-supporting and have never borrowed a cent.

My offices are in an outlying section of New York, on a side street and consist of two operating rooms, equipped with up-to-date appliances, a reception room and laboratory. The neighborhood is composed of good, medium class citizens—business people, clerks, and artisans. None very poor and few very rich.

I pay cash for living and personal expenses and do not owe a cent with the exception of dental supply bills for the current month and the mortgage on my home. I have a suburban home costing \$8,500.00 upon which I have paid \$5,500.00, also \$1,500.00 invested in other real estate. I have enough cash in the savings bank, bearing 4 per cent. interest, to support my wife and I if necessary, by being very economical. I have carried several thousand dollars of endowment insurance for several years. We own a \$1,300.00 automobile and have always lived well and never stinted ourselves the good things of life.

During the first few years of practice I worked steadily during long hours. I have since reduced my hours from 8 A.M. to 5 P.M., with no Sunday or holiday work and take from two to four weeks' annual vacation. My business is steadily increasing and my fees growing higher, for several years past I have actually saved \$4,000.00 each year and hope to do better.

I have accomplished this unaided, have never employed an assistant, nurse, oral hygienist or maid. I have always practised straight dentistry without frills, hobbies, or specialties. I have not advertised but display four legible glass signs in my windows, bearing my name and the word "dentist." The young man who falls for this ethical (?) bunk and pins his faith to a sign the size of a post card is starting with a handicap and deserves the worst he gets.

I have never joined a dental society, church or lodge, and have never played society. I have never written for the lay or dental press, been connected with a college, hospital or dispensary, discovered a cure for pyorrhoea or isolated a bug.

In front of my operating chairs conspicuous signs state—"All work must be paid for after each sitting. No Accounts Opened." I have never kept a ledger nor owned a bill-head. In eight years I have lost exactly \$185.00. When I close my office in the evening I figure my day's business by the dollars and cents in my pocket. It's a case of "cash over the counter"—the same principle as "pay-as-you-enter" street car.

Now, Doctor, you are liable to draw caustic comparisons between your little town and New York City, between your opportunities and mine, but the difference is really not so great after all. The cut-throat competition and high overhead expenses of a large city go far to equalize the difference in its favor.

As a matter of fact you have not made the most of your opportunities—you are convicted by your own statement. If you have collected \$2,500.00 a year in a town the size of yours it proves that you have ability and that the town is not a dead one. By improving your business

methods you could increase your practice and boost your earnings materially. A man who can collect \$2,500.00 a year in a small town is only getting half the load—he can do better—go after the other half.

If, however, you feel that the place holds forth no future, by all means get out while the going's good. But before you discard dentistry try another location, small town or large, give the community the best that is in you, and conduct your practice on a clean-cut business basis from the moment you open your office door, *i. e.*, on the same basis you would run the "peanut stand" you mention. Try it and see if that blue haze isn't replaced by a rosy, sunny dawn.

JACK.

PROFITS

THE DIFFERENCE BETWEEN "GROSS" AND "NET"

BY RALPH E. HEILMAN

Professor of Economics, Northwestern University

Since Congress has taxed business profits, it's doubly important to distinguish real profits from ledger mirages. This article, by an experienced student of economics, describes some cost elements often overlooked.—EDITOR.

(Concluded)

THE IMPORTANCE OF AN ADEQUATE SALARY CHARGE

But frequently when the soundness of this principle is recognized the application of it is only partial. While many owners charge the business with a salary for themselves, frequently it is not adequate. The owner who exercises important managerial functions in the direction of his business may charge himself with only a clerk's salary. Partners may allow themselves a "drawing account," which perhaps is much less than their ability would command in the open market. The president of a prosperous New England corporation doing a large business has never drawn a salary of more than three thousand dollars, being content to obtain the remainder of his income in the form of dividends upon his stock.

Many owners are reluctant to make a salary charge of an amount corresponding with what they would have to pay another to perform their duties with equal success. Yet it is evident that the owner cannot learn how much he is making by reason of being in business independently instead of in another's employ—unless he first deducts from the year's net earnings as salary an amount equal to the market value of the service and ability he contributes to his business.

Perhaps the question upon which there is the greatest difference of opinion is whether interest upon the capital owned and used in the business should be charged in estimating profits.

The earlier economists made no clear distinction between interest and profits. For example, when Adam Smith and John Stuart Mill spoke of "profits" they meant all the returns earned in a business, after the necessary expenses of operation had been met. But modern economists distinguish between interest and profits, and have long insisted that interest upon all the capital used in the business, whether owned or borrowed, should be deducted in order to ascertain the real profits. As a matter of fact, few businesses have used accounting systems based upon this principle.

The question as to the proper treatment of interest has been given a new importance by the work of the Harvard University Bureau of Business Research. This organization has formulated uniform systems of accounts for retail grocers, retail shoe dealers, and shoe wholesalers. These systems of accounts have been widely installed. The Bureau expects to undertake similar work for other lines of business.

In its first two systems, that for shoe retailers issued in 1912 and the one for retail grocers prepared in 1914, the Bureau made no provision for charging interest on capital as an item of expense. Interest on capital borrowed and interest on capital owned were treated simply as applications of net profit. But in its most recent system of accounts, prepared for the use of shoe wholesalers and issued in 1916, the Bureau announces its change of policy in this respect. It now provides for the deduction from "gross profit" of interest on capital, borrowed or owned, before arriving at the "net profit."

SOME FACTS ON WHY IT PAYS TO CHARGE YOURSELF INTEREST

Of course this treatment would leave the total earnings of a business unchanged and simply endeavors to classify those earnings. In justification of its position the Bureau says:

"The Bureau has come to the conclusion that every business, whether or not incorporated, should bear a specific charge for interest on the net investment—the amount which the capital could earn if invested elsewhere. No business is truly profitable unless it yields the proprietor not only a salary for his time and rent for his store, if he owns it, but also interest on his investment."

As a matter of fact, interest upon capital owned seems to be as legitimate a charge against the business as salary for the active owner. Neither

is an actual cost, in the sense that it is a fixed charge that the business must pay in order to remain solvent. Neither represents an obligation due to outsiders. On the other hand, if either is not met, the owner had better not be in business for himself, and would do well to accept a salary and to lend his capital. Both must be met before the owner obtains any *special* income in return for assuming the risks and hazards that the business is subject to. . . .

In connection with the subject of risk, one consideration should be made clear. An objection sometimes advanced against deducting interest is that interest varies with risk, and it might prove difficult to make an estimate as to the proper allowance for interest in a business subject to a large degree of hazard. This objection arises from a misunderstanding of the point at issue. Interest would properly be computed, not at the rate at which it would be possible to *borrow* capital for use in the owner's business and secured only by his business, but rather at the rate which it would be possible for the owner to obtain upon his capital, if securely loaned out instead of being invested in his own business. In other words, the proprietor could obtain the rate of interest current in his community, if he placed his capital out on well secured loans. This would relieve him of assuming the risks of his business.

The proprietor guarantees the payment of all the other factors in business. He obligates himself to pay for his merchandise, to pay the rent, to pay the salaries of all his employees, and to assume all fixed charges. These he guarantees. But no one guarantees him his returns. He takes his chances on this, instead of lending his capital and getting a fixed return from someone else who would then assume the risks. He undertakes to pay all the other parties concerned the amounts agreed upon in advance and takes what is left. That is what economists mean by saying that profits are the "residual element in distribution." If there is no remainder, he loses, even to the extent of losing all of his capital invested. To the extent that he supplies the capital, the proprietor is the one to assume the risk. For taking this risk he is entitled to a compensation. Indeed, without the prospect normally of receiving such compensation in the form of profits, the owner would not assume the risks.

HOW WAGES, INTEREST, AND PROFITS MAY BE REGARDED AS SEPARATE PAYMENTS

A business man may of course prefer to remain in business for himself, even though his returns do not exceed salary and interest, on account of the feeling of greater independence and freedom, and on account of the prestige arising from the ownership of a business. In this case there

may be a sort of "psychic income," but there are no real profits, in dollars and cents.

Thus it will be seen that from an economic point of view wages, interest, and profits may be regarded as separate payments arising from different sources. Wages are the payment for labor or effort, interest is the payment for the use of capital, profits are the payments for the assumption of risks. The owner or proprietor who is active in his own business supplies all three of these elements.

Although it may frequently seem undesirable or not feasible to apply in accounting systems the principles discussed above, particularly the charging of interest on capital, it is believed that the recognition of the fundamental soundness of these principles would prove highly beneficial to many proprietors—even though that recognition be in the form only of a mental computation or estimate.—*System*, August, 1917.

A SIMPLE CHART SYSTEM

By J. A. ROBINSON, MORRISVILLE, VERMONT

I have received many helps from your publication, and would like to contribute something which may be of benefit to others.

NAME _____															
ADDRESS _____															
RIGHT												LEFT		RECORD	

No. 1

We see many chart systems for the keeping of records and accounts, illustrated in the dental publications. The system which I have evolved and herewith submit for your consideration, I consider to be the simplest, cheapest, and easiest to keep of all systems that have come to my notice. It seems to me to be adequate to meet all contingencies of the practice of dentistry.

in the fourth those completed and paid two years ago. The cards for the previous years are filed in storage boxes where they may be readily referred to. On my desk are two small filing cases, each $3\frac{1}{2}$ inches deep. The first holds cards of those whose work is being done at the present

PAID OUT		DATE	DEBITS	CREDITS
		Week Ending		
		Sunday		
		Monday		
		Tuesday		
		Wednesday		
		Thursday		
		Friday		
		Saturday		
		Totals		

No. 4

PAID OUT		DATE	Year	DEBITS	CREDITS
			January		
			February		
			March		
			April		
			May		
			June		
			July		
			August		
			September		
			October		
			November		
			December		
			Totals		

No. 5

time—the other, cards of work completed but unpaid—from which I send my monthly statements.

Card No. 1 has space for the name and address of the patient, a space for record or comment and a chart for recording operations performed. No. 2, the reverse of No. 1, has columns for date, services rendered, debits and credits. In carrying out "services rendered," I use a system of abbreviations such as any one can evolve easily. For instance; "ae" for local anaesthetic, "som"—somnoform, "ex"—extract, "ag"—amal-

gam, "g"—gold, "cem" for cement, "gp" for gutta percha, "exp"—exparsa, etc., etc., Card No. 3 is the "day card" on which is recorded names of patients attended, debit for the day, and cash receipts for the day. The column at the left is headed "paid out"—and under this I put all minor expenditures for the office, not paid by check, such as drugs, gasoline, etc.

The week's totals are kept on a similar card on which the days of the week are typewritten (card No. 4) and on No. 5, total debits, credits and minor expenditures for the year are summarized by months. In my check book I keep a sufficient record of all other office expenditures.

By using the system I can tell at a glance what work has been done for the day, week, month or year as regards debits and credits, how each case has been treated—and many other details which it is of interest to know. There are no big or little books to bother with, everything is ship-shape and easily kept up.

The day cards—records of the day's debits, credits, and minor expenditures I keep in a bunch of 25 or 30 fastened with a letter clip in a pigeon hole in my desk. The top line is dated in the morning, and at night the card showing the day's work is slipped to the back of the pack. At the end of the week it is an easy matter to figure the week's totals from the six bottom cards.

A DOZEN DON'TS FOR DENTAL PATIENTS

JOHN PHILIP ERWIN, D.D.S., Perkasié, Pa.

Don't chat with your dentist. Buy his services, not his society.
Don't continually cuss dentistry. It has been sufficiently damned.
Don't neglect your teeth and expect the dentist to pay the freight.
Don't ask for credit. Pay cash, as you do to Uncle Sam and the P.R.R.
Don't kick at your dental bills. If you value your teeth cheaply, go to a blacksmith.

Don't dive into the dental chair *un*-dressed like a mermaid. A word to the foolish is sometimes efficient.

Don't expect dental work to last forever. It is made on earth, not in heaven.

Don't ask ridiculous questions. The dental office is an inflammation, not an information, bureau.

Don't take an offensive breath to your dentist. At best your mouth is not an Italian garden.

Don't leave the dental chair without a "Thank you." Money never bought sincere service.

Don't forget one of these. Be a "don'ter," not a doer of these words.—*Oral Hygiene.*

PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions, and Answers should be sent direct to him.]

SUBSTITUTE FOR PLATINIZING GOLD BACKING.—The purpose of using the platinized gold backing is to maintain the bluish hue at the tip of the porcelain facing and to facilitate the flow of the solder without burning up the backing. There is, however, a serious objection to the use of the platinized gold backing; namely, platinum has a tendency to draw away from the porcelain unless carefully overlapped, and often chips the incisal edge of the facing due to the difference in thermal conductivity.

The use of LaCloix China paint to modify the shade of porcelain is nothing new, but its use as a substitute for the platinized gold backing is original as far as the writer is concerned.

Blue China paint diluted with lavender oil is painted with a small camel's hair brush on the lingual surface of the facing, and the pure gold backing is tried on. If the color is not correct, the China paint may be changed until it is the desired shade. The tooth can now be backed with gold in the usual way. The China paint will be sufficiently baked during the soldering process.—Y. HAYASHI, D.D.S., Oakland, Calif.

SLOW PRESSURE FOR SETTING DOWEL CROWNS.—You may not know at the time that you have fractured a root or tooth in setting a dowel crown or inlay by driving it to place with a mallet, but you will find it out later. Freshly mixed cement is a liquid, with the physical property of transmitting force equally in all directions. Any blow or sudden application of force is received by the frailest part of the supporting structure. Steady pressure applied by a plugger or file that cannot slip accomplishes the object more quickly and accurately, with less risk and discomfort to the patient.—J. FRANK NELSON, *The Dental Review*.

QUESTIONS AND ANSWERS

Question. 1st. In casting very small inlays I very frequently find a pit in the gold adjacent to the sprue. Do not know how to avoid it. 2nd. After pain in extractions I rarely have trouble with infection but frequently have complaints of severe pain. Recently I took out an upper second molar. The socket did not fill in but remained quite empty with the process bare. No inflammation but severe pain persisted for several weeks. Could not control it with local applications.

3rd. Recently made a full lower plate. Am sure that the impression was O. K. and that the teeth were set well over the ridge but the plate rocked when pressure was made on the bicuspid on the right side. Was quite stable otherwise.

4th. Why are devitalized teeth sometimes sensitive to cold? What causes the soreness which frequently but not always occurs when the teeth are devitalized with arsenic? This soreness sometimes occurs just after the treatment is placed in the tooth, sometimes not for several days after, and sometimes not until the pulp is removed. In treating teeth I always remove as much of the pulp as I can but I am sure that I often leave some of it, especially in the small canals of the molars and I often have complaints of soreness afterwards. I tell the patient that I have done the work as thoroughly as possible and that I can do nothing more except extract and I very rarely have to extract. My own cases very rarely get so bad that they swell. In other cases of treated teeth that do swell when I open into them, I almost invariably find that either no attempt has been made to fill the canals or that they have been very well filled.—J. B.

ANSWER. Your favor of the 24th ult. at hand. Answering No. 1. Hold your pressure in casting until gold in both inlay and nugget has thoroughly condensed. Air pits are caused by the shrinkage of the larger mass in cooling drawing away from the smaller mass.

No. 2. Witch Hazel applied full strength on a pellet of cotton or diluted somewhat and held in the mouth will usually relieve very quickly the most severe pain after extraction. In the case of the denuded process, I would advise going after it with a bur and cutting "bare" process down to live healthy tissue. Then wiping it out with aromatic sulphuric acid a time or two. I recommend for a frequent wash at home, Abbot's Chlorazine, Dakin's newest solution.

No. 3. Am afraid I can't help you much with your lower plate at this distance but usually this difficulty can be pretty well avoided by

taking a broad muscle-trimmed impression and reproducing a fit in your plate not only of the ridge but also of the lingual and buccal mucous and muscle tissues.

No. 4. Think there is sometimes enough vitality from the peridental attachment to cause some sensitiveness for a time. I have never known such sensitiveness to persist for long, however. Arsenic, in my hands, has been so uncertain and unsatisfactory in its action that I now practically never use it. For the most comforting treatment on the root canal problem that I have read in years, see paper by Dr. Percy R. Howe in the *Dental Cosmos*, September, 1917.—V. C. S.

Question. In what strength of solution should ammonium fluoride be used in the mouth? I have the salt in the original form.—H. D.

ANSWER. My personal opinion is that ammonium fluoride should not be used in the mouth. If you wish the opinion of its chief advocate, however, write Dr. Joseph Head, 1500 Locust, Philadelphia, Pa.—V. C. S.

Question. Will someone write an article on heat and cold in dentistry, especially its employment at the different stages of acute and chronic alveolar abscesses?—R. A.

ANSWER. Heat and cold are used in testing a tooth's vitality. If sensitive upon application of cold we assume the presence of a healthy vital pulp. If extremely sensitive to cold or to both heat and cold, it usually means an inflamed or irritated pulp. If more sensitive to heat than to cold, a congested, unhealthy or dying pulp is indicated. Where peridental inflammation is manifest and a counter-irritant such as equal parts of iodine and aconite upon the gum at region of apex is indicated, application of cold to that side of the face may be beneficial. But where an abscess has progressed so far that it is desirable to bring it to a head, the application of heat upon a limited area opposite apex of offending root is indicated. Little pieces of fig heated in hot milk are good for this purpose. They should be changed frequently as they cool. Heat should never be applied to the outside of the face in these cases, as it is sure to increase the swelling and apt to draw it to a head with fistula opening through the skin of cheek or neck. The greatest use for heat in dentistry that I have found is for the purpose of obtunding sensitive dentine. By keeping a steady stream of *hot* water playing upon a tooth while grinding in preparation for crown or filling, it is surprising how satisfactorily the sensitiveness is allayed.—V. C. S.

Editor of Practical Hints:

In July DIGEST, Doctor Ruzicka advises buying alloys in one ounce bottles which may be used as medicine containers when empty.

A great deal better reason for buying alloy in one ounce packages is on account of the oxidation and deterioration which takes place on exposure to air the last part of a five or ten ounce bottle, at the rate used by the average practitioner is of very inferior quality on this account, the depreciation being greater also if located in the vicinity of coke oven or large manufactories where there is an unusual amount of sulphur in the atmosphere.

"E. A. D." asks you how to remove silver (he means mercury) from a gold crown in the mouth. You answer by telling him how to prevent it from getting on the crown which is O. K. but will not help him much in this case.

A rubber cleaning disc containing an abrasive is all that is necessary—an ink eraser will do it. Mercury in excess on gold may easily be removed by first "Fixing" it with a solution of silver nitrate and then polishing as for any other corrosion or tarnish.—A. B. FRENCH, D.D.S., Homestead, Pa.

Editor of Practical Hints:

In the September issue of the DENTAL DIGEST, the *Pacific Dental Gazette* advises the use of a sharp inverted-cone bur in the removal of wax from an inlay, this removal being necessary to protect the vitality of the pulp.

Roach's suction wax carver is much more accurate and can be used with much less danger of injury to the matrix.

A piece of heavy angle ligature wire is a very efficient agent in the removal of wax inlay matrices. A piece about $1\frac{1}{2}$ inches long is used. One end is bent back upon itself a distance of about $\frac{1}{16}$ th of an inch. This is heated and forced into the wax when the whole is chilled. The wire is then used as the sprue in the investment and all handling of the wax is done away with.—R. W. WICKINS, D.D.S., Rochester, N. Y.

[I think simply notching the end of the wire is preferable to bending it up as the turned up end has a tendency to tear the investment upon removal of the sprue former, leaving loose particles to be carried into the casting.]

Editor Practical Hints:

Please describe an easy and good way to make an open-faced crown.

H. R. S.

THE BEST OF CURRENT THOUGHT

[*The Journal of the National Dental Association*, October, 1917]

Original Communications

The Microscopic Anatomy of Chronic Periodontitis and the Pathogenesis of Dental Root Cysts. (Illustrated with Seven Four-colored Halftones) By Arthur T. Henrici, M.D., and Thomas B. Hartzell, M.D., D.M.D.

A Histo-Pathological Study of the Dental Granuloma and Diseased Root Apex. By Kurt H. Thoma, M.D.

Persistent Chronic Apical Inflammation and its Treatment. By John Sayre Marshall, M.D. Sc. D., F. A. C. S.

Notes on Conductive Anesthesia. By Theodor Blum, D.D.S., M.D.

Pathology of War Surgery with Reference to Its Relation to Diseases of the Mouth. (Tetanus, Gas Phlegmon, Septic Affections.) By Leo Eloesser, M.D.

The Filling of Root Canals.—The Most Vital Operation a Dentist Performs. By David Wield McLean.

*Proving the Basal Cause of the Disease Pyorrhea Alveolaris. By S. N. Young, D.D.S.
Pyorrhea Cum Ulceratione Gingivae Absorptionem Processus Alveolaris, or Pyorrhea Cum Ulceratione Gingivae Absorptionem Alveoli. By Jennie Clark Morrison, D.D.S.

Preparedness League

Free Dental Activity for the New National Army.

Directors of Free Dental Activities for the New National Army.

New York Dentists Present Ambulance to United States Government. By Edwin P. Wolfe, Colonel, Medical Corps.

Western Dental College Equips Dental Motor Ambulance. By J. P. Rinehart, D.D.S.

Report of the Committee on Dentistry, General Medical Board Council of National Defense.
By Wm. H. G. Logan, D.D.S., M.D.

Official Program

Editorial Department

A Reasonable Course to Pursue in the Treatment of Pulpless Teeth.

Dental Students and the Draft-Army Dental Service.

Dental Reserve Corps Officers Released from Serving as Privates.

*PROVING THE BASAL CAUSE OF THE DISEASE PYORRHEA ALVEOLARIS

By S. N. YOUNG, D.D.S., CINCINNATI, OHIO

As a basis for investigation it was accepted as a pathological fact that pyorrhea alveolaris is a suppurative inflammation, and that an inflammation merely represents the succession of changes that takes place in vital tissue as the result of an injury, or accompanying an intermittent or a consistent irritant; the cardinal symptoms manifesting according to the character of the tissue involved. The disease began with the stage of hyperaemia and followed the usual course of an inflammation to its natural termination, to the elimination of the irritant, provided it was not interfered with favorably or otherwise before the natural course of events was completed.

In determining the basal cause of the inflammation in question it was necessary to discover an irritant constant in its association with the disease. Two factors only were found to be invariably present in the disease pyorrhea alveolaris; namely, the tooth afflicted, and for correct nomenclature, the presence of active suppuration; the tooth representing the irritant, suppuration the tissue reaction.

Four clinical facts proved the tooth itself to be the direct irritant. First: In the pyorrhea tooth constructive change in the pulp tissue was always found. This fact demonstrated natural defense of pulp vitality against external irritation. Second: Pericemental destruction always preceded along the line of attachment to the tooth cementum. This proved lack of harmony between the tooth itself and its pericemental associate; or that the pericemental membrane, the seat of the inflammation, was being irritated by the ever present tooth. Third: The accompanying suppurative process (constant) whose function it is to eliminate substance inimical to life; examples of which function can be seen in the removal of the intractable splinter, in the exfoliation of the sequestrum of necrosis, and of formation of avenue for egress of gases and like irritating products through the process of abscess formation. Fourth: Providing the third assertion, when upon removal of the afflicted pyorrhea tooth the disease was invariably cured, in so far as the particular tooth was concerned.

The question then necessary was: What is causing the tooth to become an irritant? Only one factor was found to be constant in its association with the afflicted tooth to convert it into an irritant, that factor was the application to the tooth of a coagulative temperature, the usual agent of application being food ingested at a temperature, by thermometer test, invariably above the scalding point, i. e., above 150° F. In severe afflictions usually at least one item of food, sometimes all

of the food, was being ingested at a temperature above 160° F. The heat of the cigar and of the cigarette also was frequently found to be an inducing factor when from localized habit a local manifestation would present, general conditions and habits favoring.

The only requirement found necessary to eliminate the disease in the incipient stage was the avoidance of food or of contact with substance of a temperature sufficiently high to bring about coagulation of the tissue albumin; that is, the food was allowed to cool to a temperature below 120° F. before ingesting; other habits being corrected when found associated.

Although it is generally agreed to by dietitians that food should not be ingested at a temperature much above that of the body itself, (98.6° F.) and there is sound logic in that decision, in severe cases of pyorrhea alveolaris, when from excessive absorption extensive tooth substance was exposed, we were enabled to bring about curative effects by placing an upward temperature limit at 110° F., the upward degree obtained by an instinct test in which test the food was allowed contact with the external surface of the lips of a proper subject, this surface being supplied with sensitive nerves which convey the protecting impulse, a fact which does not apply to the oral mucous membrane, the anatomical peculiarity of which is its "characteristic lack of sensation."

The same causative factor that is pointed out as being the basal cause of the aforementioned disease, the application to vital organized tissue of a coagulative temperature, has also been associated with the following diseases: diabetes mellitus, from destruction of the ptyalin and early stomach digestive ferments (proteid bodies); rheumatism, endocarditis and chronic nephritis, from circulation through the vascular system of coagulated substance; and a possible association of the disease or reaction known as gout, from chemical reduction of certain tissue elements, the symptoms developing along the line of inherent structural weakness, and manifesting in people of listless habits, or in those whose occupation does not bring about the natural counter effect.

[*The Dental Review*, November, 1917]

Original Communications

Oral Foci of Infection. By H. H. Schuhmann.

Dental Pediatrics. By Dr. Joseph A. Gardner.

Syphilis of Mouth and Throat. By Dr. Frank Lydston.

System as Applied to the Dental Office. By Henry L. Whipple.

Wisconsin State Dental Society, Forty-seventh Annual Meeting Held in Janesville.

Chicago Dental Society.

A Red Letter Day for Dentistry.

War Department, Office of Surgeon General.

[*Oral Health*, October, 1917]

- Photograph. W. Cecil Trotter, B.A., D.D.S., Toronto. *Frontispiece*.
 Arsenic and Formalin in Relation to Radiolucent Areas at Root Apices. By Howard J. Merkeley, M.D.S., Winnipeg.
 Canadian Dentistry and National Service—An Authoritative Survey of Pre-War and Present Conditions of the Dental Profession, in the Dominion of Canada. By Wallace Seccombe, D.D.S., Toronto.
 Oral Prophylaxis. By F. H. Skinner, D.D.S., Chicago, Ill.
 Farewell Dinner to Major Corrigan. By W. E. Willmott, D.D.S., Toronto.
 The Compendium
 Anchorage of Alloy Fillings.
 Mistakes in Root Canal Work.
 The Upper Third Molar—The Necessity for its Removal.
 Correspondence.
 Active Service Roll.

[*Dominion Dental Journal*, October, 1917]*Original Communications*

- X-Ray Pathology, or the Experience of a Dental Radiographer. By Frank D. Price, D.D.S., L.D.S., Toronto, Can.
 The Relation of the Human Teeth to Physical and Mental Development. By A. E. Webster, M.D., D.D.S., Toronto, Can.
 Scheme of Social Reform.
 The Effect of Organic Acids Upon the Teeth.

Editorial

- Dental Services in France.
 Editorial Notes.

[*Oral Hygiene*, November, 1917]

- On Being An American.
 The Rochester Dental Dispensary—Policies and Rules for Treatment. By H. J. Burkhardt, D.D.S., Rochester, N. Y.
 A Don't-Tell Party. By John Philip Erwin, D.D.S., Perkasie, Pa.
 Associate Lesions of First and Second Dentition—Diseases Incident to Teething Periods of Babies and Children—Improperly Diagnosed by Medical Profession as Anterior Poliomyelitis. By G. W. Cockran, D.D.S., Erie, Pa.
 Psychology and the Dentist. By Wm. Oleon, D.D.S., Pittsburgh, Pa.
 Making the Doctor Take His Own Medicine.
 The Conservation of the World's Teeth—A New Occupation for Crippled Soldiers. By F. B. and L. M. Gilbreth, Providence, R. I.
 Children's Dental Needs.
 A School Clinic in New Jersey. By Thomas Vincent, D.D.S., Orange, N. J.
 Plans for a Cantonment Dental Clinic.

Editorial

- A Dental Chaos.
 A Few of the Things We Can Learn From the Canadians.
 Outline of Oral Hygiene Lessons.
 Emergency Case Records.

[*The Dental Cosmos*, November, 1917]

Original Communications

- Chronic Peridental Infections. By Julio Endelman, D.D.S.
A Study of the Enamel, with Special Reference to the Lines of Schreger. By E. Ballar-Lodge, D.D.S.
Focal Infection. By Alonzo M. Nodine, D.D.S.
An Instrument to Facilitate the Adjustment of the Angle Ribbon Arch. By Robert W. Gaston, D.D.S.
Dental Abscess or Infection and Its Consequences. By Judson Daland, M.D.
The Relation of the Hospital to the Community. By Henry I. Klopp, M.D.
Radiology as an Adjunct in the Practice of Dentistry (Correspondent's Report Dental Society of the State of New York). By L. M. Waugh, D.D.S.
Type vs. Temperament: The Harmonious Discord. By Norman S. Essig, D.D.S.
Mathematics of the Normal Dental Arch. By Alexander Sved, B.S. in C.E.
New Instruments for Ionization. By Isidore Clifford, L.D.S., R.C.S. Eng.
"Type vs. Temperament in the Selection of Teeth."
"Malocclusion as a Problem in Pathology."
Dental Preparedness in the Army.
Dental Society of the State of New York
Susquehanna Dental Association of Pennsylvania.

Editorial Department

- "Recognition."
Bibliographical.
Review of Current Dental Literature.
Periscope.

[*International Journal of Orthodontia*, October, 1917]

Original Articles

- The Development of the Bones of the Face. By Warren B. Davis, M.D., Philadelphia, Pa.
The History of Orthodontia. By Bernard Wolf Weinberger, D.D.S., New York City.

Department of Dental and Oral Radiography

- Roentgenographic Study of Infected Areas about the Teeth. By Virgil Loeb, A.B., M.D., D.D.S., St. Louis, Mo.

Editorials

- The Teaching of Orthodontia in Dental Schools.
Report of the Committee on Nomenclature.
Oral Abscesses.

[*Journal American Medical Association*, October 27, 1917]

[*Journal de Médecine de Paris*, xxxvi, No. 5]

HOT FOODS AS FACTOR IN DYSPEPSIA

Manquat relates various experiences which converted him to the opinion that in a very large proportion of cases dyspepsia and aerophagia are brought on and maintained by the habit of taking beverages and food too hot for the tissues to bear without injury. This is partic-

ularly the case with hot soups, tea, etc., taken on an empty stomach. The hot fluid passes so rapidly through the mouth that the buccal mucosa is not injured. When the hot drink is taken at the close of a meal, the injury is comparatively slight as the stomach walls are protected by other food. The thermometer will show temperatures of 60 or even 68 C. (140 or 154 F.) in soups and other dishes currently taken, and even higher than this in a baked potato. He found that those dyspeptics accustomed to hot beverages and hot soups usually had long, narrow, and sagging stomachs. The stomach is tender under pressure and spontaneously painful at a variable period during digestion. Hypersecretion with varying acidity and constipation are the rule—all indicating a tendency to chronic gastritis. The action of ptyalin on starch becomes reduced at temperatures over 45 C. (113 F.) and pepsin may have a similar temperature range of action. The hand cannot be held in water at 45 C. (113 F.) without modifications in the respiration and the general circulation. These modifications must certainly be more profound when the extensive and delicate mucosa of the stomach is exposed to such high temperatures. In practice, when Manquat has been able to overcome the habit of hot drinks and foods, the dyspepsia improved notably. The symptoms from stagnation in the stomach and the aerophagia were the first to show the benefit. When heat is indicated for the stomach, he adds in conclusion "apply it to the outside."

MILITARY DENTAL CLINIC IS FINEST IN THE WORLD

At Camp Borden, Canada possesses the finest military dental clinic in the whole world. This is conceded to be the case by the highest dental military authorities. Fifty thousand recruits who would not have been otherwise eligible for overseas service were enabled to be in the ranks of the Canadian Expeditionary Force through dental treatment given by the Canadian Army Dental Corps either at Camp Borden or at other branches throughout the Dominion.

Major W. G. Thompson, A.D.D.S., is the officer in command of the dental corps for the Toronto Military District. He has ten thousand dollars' worth of reserve dental stores at Camp Borden in addition to the valuable equipment of the dental clinic building. Major Thompson is a Hamiltonian. He has been president of the Tiger football team for several years, and is a football player of note, having figured prominently in some of the biggest games as a member of the Varsity and Hamilton Tiger teams.

An idea of the magnitude of the dental work being carried on at the Camp Borden clinic is gained from the fact that the staff numbers twenty-

one. Fifteen hold the rank of captain and five that of lieutenant. In addition, five other staff members have just gone overseas.

The Camp Borden dental clinic is located in an attractive concrete building, one hundred and fifty feet long, erected on a hill in the northern portion of the camp. Although it is only one-story high the dental building has a most artistic appearance, being of a tropical type of architecture, with windows made picturesque by bright striped awnings of red and khaki. The interior is finished in ivory white throughout and equipped with electric lights.

The main operating room is nearly a hundred feet long and contains about 25 dental chairs of the latest pattern field portable style. Each chair can be fitted into a box for transportation overseas. They are the kind used in the United States Army, and adopted by the department of militia for the Canadian forces. Owing to the fact that there is no gas works at the camp the clinic is putting in an acetylene gas plant for laboratory purposes, also an addition of electric sterilizers. The next improvement will be an X-ray machine, to be used in the work of research.

The quality of artificial teeth used at the clinic is the best procurable on the market. It is sometimes requisite to do one hundred dollars' worth of work, at the usual rates, for one soldier.

The anaesthetics used in teeth extraction are the most expensive kind, but this is absolutely necessary, because in some cases the soldiers require almost a new set of teeth, and a large number have to be extracted. By means of local anaesthetics, this is accomplished with the least possible pain. The dental staff is composed exclusively of experienced men. Many of its members have been fifteen and twenty years in practice, and include some of the Dominion's leading dental practitioners.

The eagerness of the soldiers to receive dental treatment is surprising. The applicants for treatment have to be lined up at the clinic entrance, as each one of the nearly 200 soldiers a day who visit it, desires an early turn. The soldiers treated total over one thousand a week (equal to a battalion). During the month of September alone, the Camp Borden clinic performed 21,397 operations. A total of 4,237 men were treated. There were 4,355 teeth extracted in the one month. Nearly 600 of Camp Borden's soldiers have been provided with artificial teeth, thereby making them eligible to proceed overseas with their units. These sets of teeth were all prepared in the clinic's own laboratory. Since the opening of the camp nearly 15,000 teeth have been extracted by the clinic dentists. The dental operations of all kinds total 62,000.

A dental history sheet of each soldier, showing the work performed

here, is now attached to his medical report sheet, so that the information will be available for the military dentists in England and at the front.

While a close cut has been made of battalion supernumerary officers the militia department has authorized the sending with each overseas unit that goes forward a dental sub-staff of three. It will consist of one dental surgeon, one non-commissioned officer assistant, and one orderly.

Recruiting officers have been instructed not to reject any men on account of bad teeth, if otherwise physically fit. Formerly, very bad teeth were regarded as rendering an applicant for enlistment ineligible, but now a recruit can be brought up to the mark, even if he has practically no good teeth at all. One complete set of 28 teeth was shown to the writer, which had been prepared for a Camp Borden soldier. No finer set of artificial teeth could probably be supplied to any one.

While no expense is spared in the efficient working of the dental clinic a rigid accounting system for all the supplies is used. It is a loose-leaf system, in which every item taken on account is supported by issue vouchers, and every item being disposed of, must be supported by receipt vouchers.

The department of militia is making appointments for every military division in Canada of a similar dental staff to that of Toronto. They will each consist of an assistant director of dental services (in charge) a quartermaster, Q.M.S., sergeant, clerk and orderly. Previously, the work has been directed from Ottawa alone.

MR. CLEVELAND LOST ONE JAW

FACTS OF THE SURGICAL OPERATION ON THE PRESIDENT IN 1893 REVEALED
FOR FIRST TIME

In an article in the current issue of the *Saturday Evening Post*, Dr. W. W. Keen, emeritus professor of surgery of the Jefferson Medical College of this city, reveals for the first time the facts connected with the surgical operation performed on President Cleveland on July 1, 1893. It will be recalled that the publication of rumors of such an operation led to animated controversy and to official denial from Washington.

The operation was performed only a few days before congress met in special session to hear Mr. Cleveland's message urging the repeal of the Sherman Act, and Doctor Keen explains that the reticence regarding Mr. Cleveland's condition was due to the gravity of the financial situa-

tion and the belief that it would affect his plans respecting the repeal of this measure.

The operation was performed on board the yacht *Oneida*, belonging to Commodore E. C. Benedict. Doctor Keen thus describes its extent:

"The entire left jaw was removed from the first bicuspid tooth to just beyond the last molar, and nearly up to the middle line. The floor of the orbit—the cavity containing the eyeball—was not removed, as it had not yet been attacked. A small portion of the soft palate was removed."

It was on Sunday, June 18, of that year, that Dr. R. M. O'Reilly, later surgeon-general of the United States Army, examined a rough place in Mr. Cleveland's mouth. An ulcer was discovered, and the pathologist of the Army Medical Museum, in Washington reported after examination that it was strongly indicative of malignancy. The operation was performed by Dr. Joseph D. Bryant of New York assisted by Doctor Keen, Dr. E. G. Janeway of New York, Doctor O'Reilly, and Dr. John F. Erdmann. Dr. Ferdinand Hasbrouck, dentist, also was present as an assistant.

The operation was done entirely from the inside, so no telltale scar was left, and later the president was fitted with a rubber jawplate, which enabled him to retain his accustomed voice and pronunciation. Some weeks later a second operation was performed to remove additional tissue that was believed to be infested.

Mr. Cleveland died fifteen years after the operation.—*New York Globe*, Sept. 20, 1917.

NOTICE OF THE ANNUAL MEETING OF THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES

The Annual Meeting of the Dental Protective Association of the United States will be held at the Palmer House, State and Monroe Streets, Chicago, on the third Monday of December, the 17th, at 4 P. M. sharp. The report of the officers, including the status of the litigation with the Carr patents, will be given; a Board of Directors will be elected, and such other business transactions as should come before the Association.

Heretofore each member has received a postal card notice of the Annual Meeting. This will not be done hereafter for the reason that it was voted by the members at the Meeting last year to discontinue the individual notice; substituting therefore the publication of a general notice in the *Journal of the National Dental Association*, and all other important Journals.

All members are urgently requested to be present.

By order of the Board of Directors,

J. G. REID, *Pres.*

J. P. BUCKLEY, *V.-P. and Sect'y.*

D. M. GALLIE, *Treas.*

FUTURE EVENTS

- December 4, 1917.—Colorado State Board of Dental Examiners, Denver, Colo.—R. C. QUICK, Denver, Colo., *Secretary*.
- December 5-7, 1917.—Ohio State Dental Society, Hollenden Hotel, Cleveland, Ohio.—F. R. CHAPMAN, 305 Schultz Bldg., Columbus, Ohio, *Secretary*.
- December 4-7, 1917.—Pennsylvania Board of Dental Examiners, Musical Fund Hall, Philadelphia, and University of Pittsburgh. Examination in Operative Dentistry, December 4, Philadelphia Dental College, Philadelphia, and in Pittsburgh.—ALEXANDER H. REYNOLDS, 4630 Chester Ave., Philadelphia, *Secretary*.
- December 7, 1917.—California Board of Dental Examiners, San Francisco, Cal.—C. A. HERRICK, 133 Geary St., San Francisco, *Secretary*.
- December 17, 1917.—Texas State Board of Dental Examiners, Dallas, Texas.—HARRISON B. CAVE, Wilson Bldg., Dallas, *Secretary*.
- January 8, 1918.—North Dakota Board of Dental Examiners, Fargo, No. Dakota.—W. E. HOCKING, Devil's Lake, *Secretary*.
- January 10-12, 1918.—The next meeting of the North Carolina State Board of Dental Examiners will be held at Raleigh, No. Car.—F. L. HUNT, Asheville, No. Car., *Secretary*.
- January 14-18, 1918.—The Montana State Board of Dental Examiners will meet in Helena, Montana, for the purpose of conducting examinations.—G. A. CHEVIGNY, 107 Clark Blk., Butte, Mont., *Secretary*.
- January 14-17, 1918.—The Idaho State Board of Dental Examiners will hold the next session at Boise, Idaho.—A. M. JACOBSEN, 255 East Centre St., Pocatello, Idaho, *Secretary*.
- February 7-9, 1918.—Minnesota State Dental Association, University of Minnesota, Minneapolis, Minn.—MAX E. ERNST, 1125 Lowry Bldg., St. Paul, *Secretary*.
- April 18-20, 1918.—Connecticut State Dental Association, Hotel Taft, New Haven, Conn.—GEO. S. B. LEONARD, *Secretary*.
- April 25-27, 1918.—The Virginia State Dental Association, Roanoke, Va.—F. R. TALLEY, *Corresponding Secretary*.
- June 19-21, 1918.—North Carolina Dental Society, Oceanic Hotel, Wilmington, N. C.—W. T. MARTIN, *Secretary*.

QUEBEC DENTISTS MAY ADVERTISE

The College of Surgeon Dentists of the Province of Quebec has abolished the rule prohibiting newspaper advertising by its members.
—*Printers' Ink.*

A Tooth Paste and Brush Fund

By the Editor

SOMEBODY who doesn't smoke and thinks we should furnish material for caring for the mouth to our boys in France, instead of "smokes," has suggested the starting of a fund with the above title.

Lieut. Harvey J. Brachman, D. D. S., who is putting the mouths of soldiers in Michigan into good condition, and is also giving the boys valuable instruction on the care of their mouths, comes right across with a contribution for that purpose.

If any of you wish to make similar contributions, I'll do the best I can with the money, and report to you what I do. Just to make the thing general, I'll duplicate Brachman's contribution. If you want part of this, send in your checks for any amount you like. All will be acknowledged here.

H. J. Brachman, D. D. S.

\$10.

G. W. C.

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in
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OF TRUBYTE TEETH

NEW YORK

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DECEMBER 1917

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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., EDITOR

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By W. M. RUTHRAUFF, A.B., A.M.

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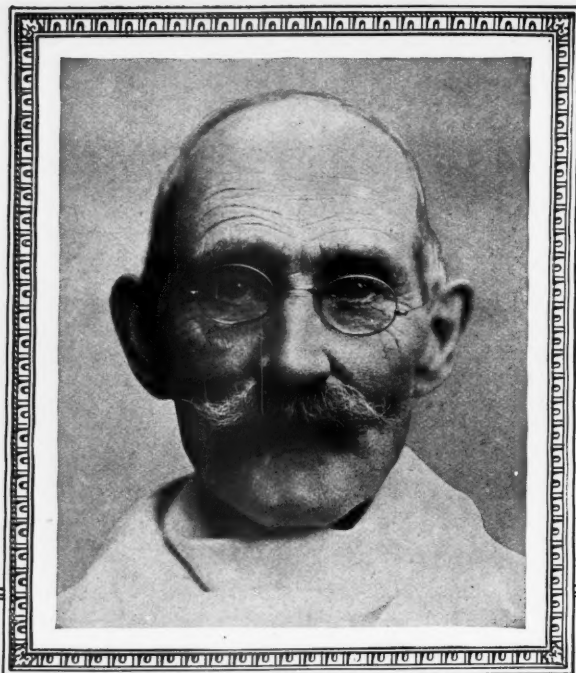
SEVERAL dentists had been unsuccessful in efforts to fit the case illustrated with full upper and lower dentures. The upper was hard all over, while the lower exhibited excessive absorption. No lower plate had been worn for several years and the lower lip had shrunk so that it tended to force the lower plate backward off the ridge.

The impressions and bites were taken and the teeth arranged by the methods taught in the Laboratory of our Research Department and which are being illustrated and described in the book *Professional Denture Service* which will be sent, free, to each subscriber to this magazine for 1918.

The resulting appearance and efficiency are partly shown in the following illustrations, but the patient's delight with the results cannot be there shown.

No excellence of form or color in artificial teeth can take the place of good impressions and bites and of proper articulation, since teeth alone cannot make plates stable in position or efficient in mastication. When the technic is good, the best appearance and greatest efficiency are secured by the use of **Trubyte Teeth**.

(Continued on next page)



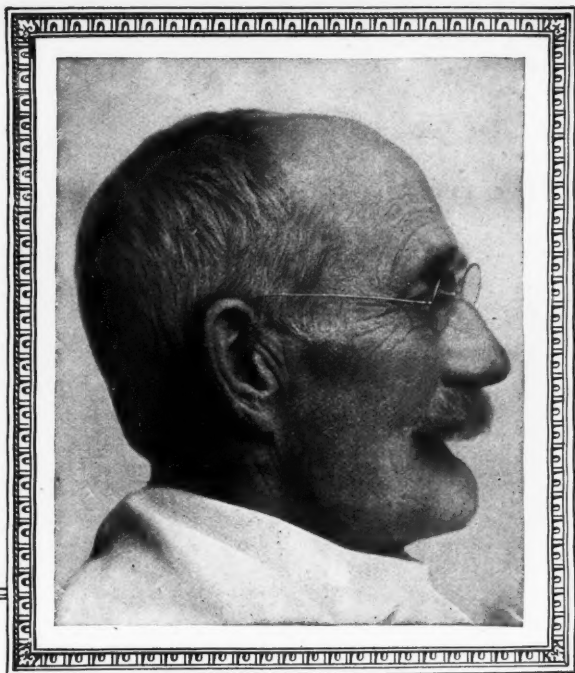
No. 1.

Front View—Edentulous

The appearance of senility in this face is largely caused by the falling inward of the unsupported lips and cheeks. It is largely correctible by means of Trubyte denture service.

The occurrence of such changes in the face and their consequences offer the skilful prosthetist the best opportunities for educating edentulous patients to the merits of good service.

(Continued on next page)



No. 2.

Profile—Edentulous

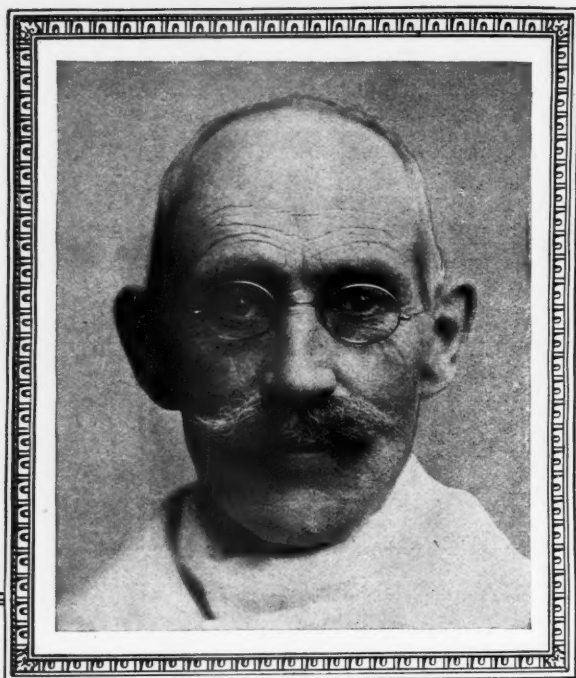
No lower plate had been worn for several years because none was either stable or comfortable in position.

The lower ridge had been completely resorbed.

None of the lowers made were well articulated to the uppers.

The falling in of the lower lip for several years had permitted the free portion of the lip to shrink to such an extent that it tended to force the lower denture backward out of position and greatly increased the difficulties of restorations.

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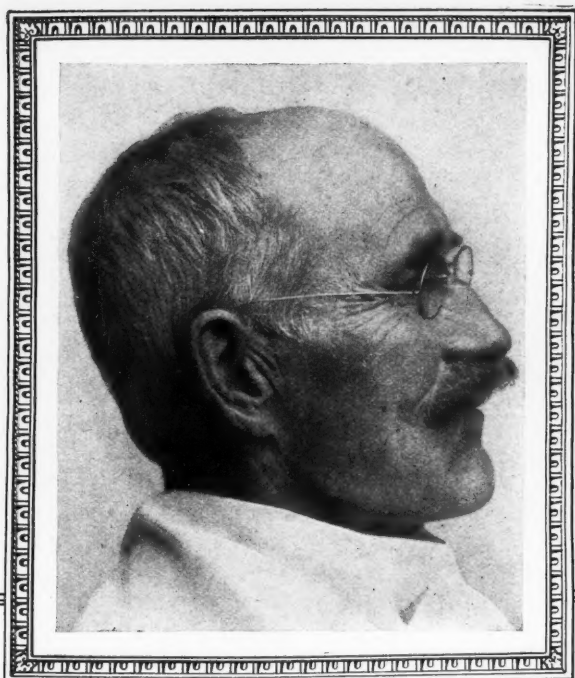
No. 3.

Trubyte Dentures in Position

Note the appearance of strength which is given the face by the supporting dentures. Senility has given place to mature vigor and despite the wrinkles about the mouth, years of age have been taken away from the patient's appearance.

Patients should be taught that such results come only from the employment of good technic.

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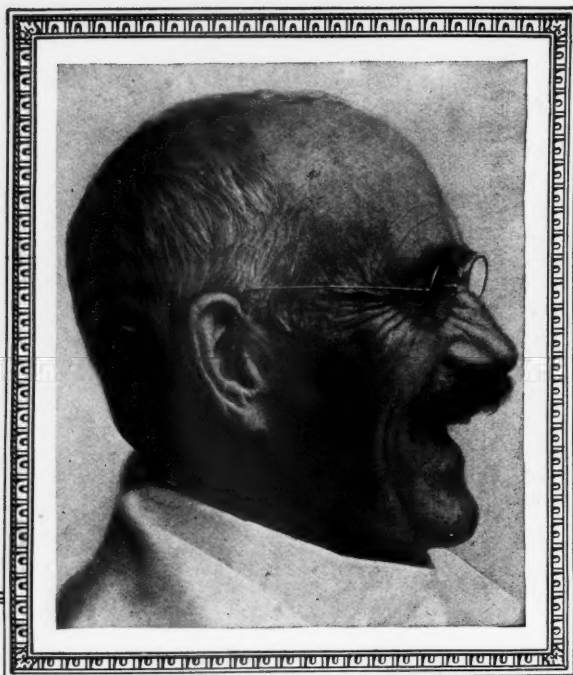


No. 4.

Profile—Trubyte Dentures in Position

Just as the profile view **without** the dentures emphasized the loss of teeth, so the profile of the patient wearing Trubyte dentures brings out more strongly the effects of the restoration of features and expression. A strong, firm chin has taken the place of edentulous age and every line of the face shows more strength.

(Continued on next page)

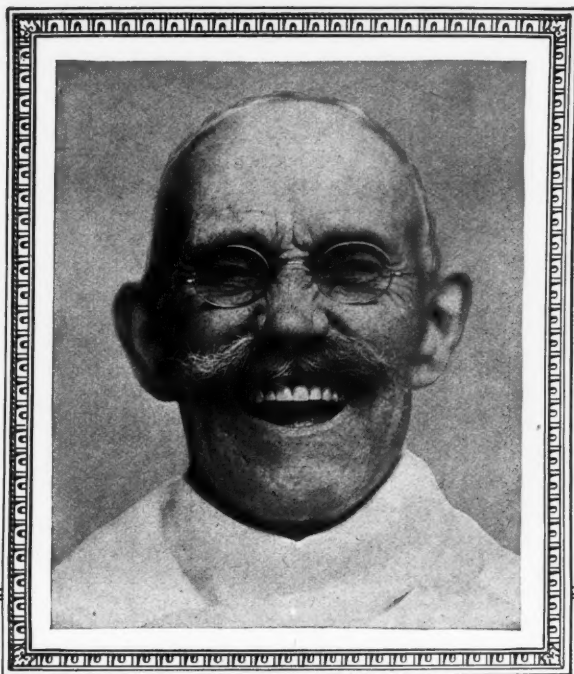


No. 5.

Profile View—Smiling

This picture shows the patient in the act of smiling with both dentures in position, without fear of dislodging either denture. The patient had never been able to wear plates before, and it was necessary to hold his old upper plate in place with his tongue whenever he forgot his "plate" troubles long enough to smile. He now smiles more frequently as his Trubyte dentures seem to be so much a part of him that they are practically forgotten.

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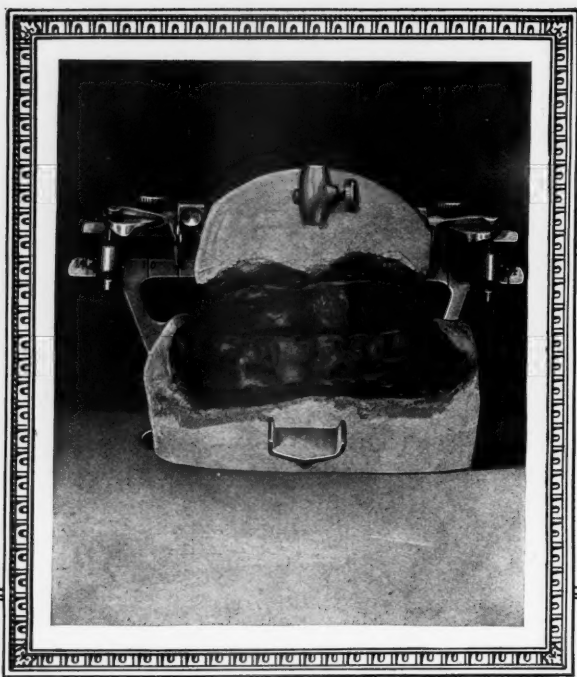
No. 6.

Laughing—Trubyte Dentures in Place

When the patient laughs the real test of tooth appearance comes. Trubyte teeth are the only artificial teeth which meet this test successfully because they harmonize with the face form and are shaded in the set; this produces a naturalness in appearance not found in any other artificial teeth.

Trubyte teeth are the only teeth that can be scientifically selected to harmonize with the face form.

(Continued on next page)



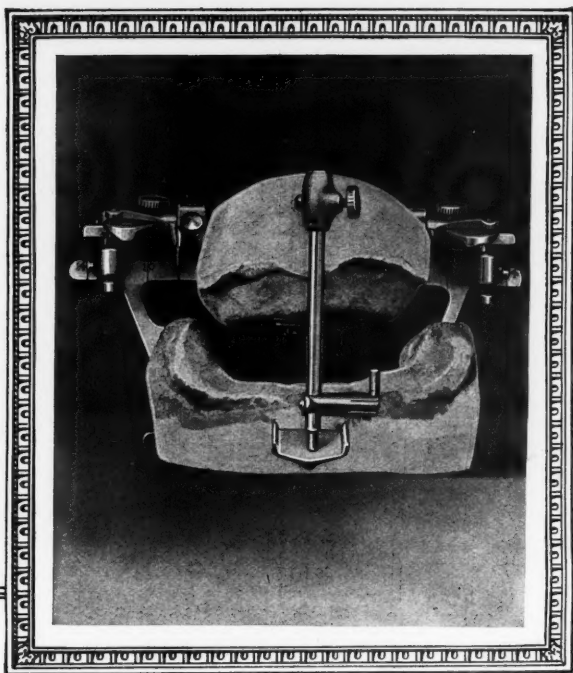
No. 7.

Case Mounted with Bite Blocks

When the case was mounted by means of the face bow, it was discovered that the left "heel" of the lower model extended considerably farther from the median line than did the right heel, and the whole model seemed rotated. As the upper model was practically centered, the position of the lower was proven to be normal for that individual.

These individual peculiarities are important and justify the use of the face bow.

(Continued on next page)



No. 8.

Front View Models Without Bite Blocks

The upper model is well centered. The lower is thrown well to the patient's left, bringing the left heel far from the median line and the right heel close to the tuberosity of the upper.

In really fine work the teeth are arranged in harmony with these individual conditions. It pays both dentists and patients.

(Continued on next page)



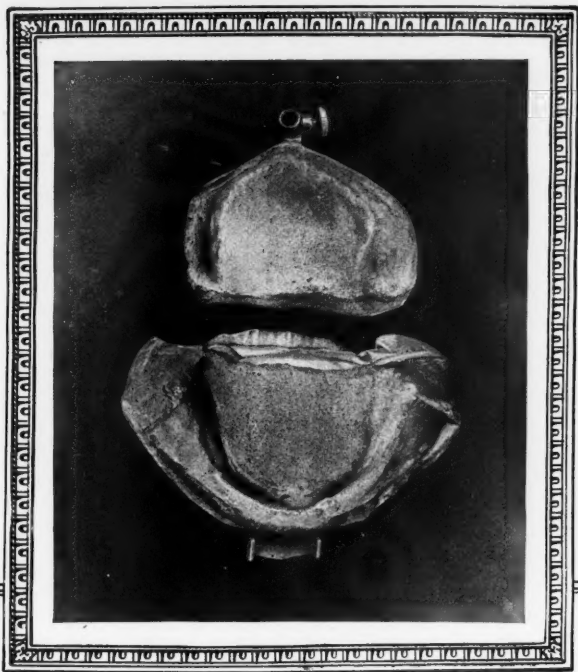
N^o. 9.

Side View of the Mounted Models

Not only were the upper and lower jaws of unlike size, with the lower rotated, as regards its position to the upper, but the "heels" of the lower were anterior to the tuberosities of the upper and level with them, while the separation between the upper and lower ridges in the incisor region was very marked.

It is not to be wondered at that unscientific methods had been unsuccessful in a case presenting so many difficulties.

(Continued on next page)



No. 10.

Models Heel to Heel

The absorption of the upper alveolar ridge is mostly from without inward, resulting in an edentulous upper jaw considerably smaller than it was when the teeth were present.

Absorption of the lower alveolar ridge is from above downward, which does not appreciably reduce the size of the jaw.

In this case absorption was complete and the lower jaw was very large while the upper was very small. By studying the picture a little, the dimension of the lower can be plainly seen.

(Continued on next page)



No. 11.

Rear View of the Bite Blocks

It is important that in taking the bite the baseplate should be closely adapted to the ridge.

This rear view of the baseplates shows, better than any other, the asymmetrical relations of the upper and lower models. The great disparity in width between the two models can be seen and the proximity of the two on the right with the much greater separation on the left.

All these factors are of importance in arranging artificial teeth to give the patient comfort, appearance, and efficiency.

(Continued on next page)



No. 12.

The Final Biting Test

When the Trubyte dentures were finished, the patient could bite a wooden lead pencil hard enough to imprint the molar cusps their full depth without dislodging either denture, the plates being unsupported on the opposite side.

(Dentists interested in improving prosthetic technic will desire copies of the book Professional Denture Service which will be given free with THE DENTAL DIGEST for 1918.)

THE DENTISTS' SUPPLY COMPANY OF NEW YORK
 SOLE MANUFACTURERS OF TRUBYTE TEETH
 220 WEST 42ND ST. NEW YORK

1439-12-17

The Ames Mixing Slab

Temperature Control as
Advocated by
Dr. W. V-B. AMES since 1912.

**A Mixing Slab of definite
temperature is necessary
for uniform results.**



**MIX AMES' OXY-PHOSPHATE OF COPPER
CEMENT AT 70° TEMPERATURE**

**MIX AMES' BERYLITE, CROWN AND BRIDGE
AND INLAY CEMENTS AT 60° TEMPERATURE**

A cool slab retards chemical action during the mix, enabling the incorporation of sufficient powder to insure proper setting of the cement when transferred to the tooth.

A too high temperature during the mix hastens setting on the slab, but gives retarded setting in the tooth.

THE SLAB AS ILLUSTRATED MAY BE FILLED WITH WATER OF THE DESIRED TEMPERATURE, AND USED ON ALL FOUR SIDES. SOLD BY ALL GOOD DEALERS OR DIRECT FOR \$1.25 COMPLETE.

THE W. V-B. AMES CO.
FREMONT, OHIO

Times Bldg.,
NEW YORK

Republic Bldg.,
CHICAGO



Trubyte Posteriors Are Marked

on the mesial side of the backs, with small elevations. The *first bicuspid*s and *first molars* each have *one* elevation as shown. The *second bicuspid*s and *second molars* each have *two* elevations as shown.

This system of marking identifies the first and second bicuspid and molars and as the elevations are always on the mesial side of the backs, it is easy to distinguish between rights and lefts without studying the occlusal surfaces.

THE DENTISTS' SUPPLY COMPANY OF NEW YORK
SOLE MANUFACTURERS OF TRUBYTE TEETH
220 WEST 42ND ST. NEW YORK



Think This Over!

How many patients have you lost because of faulty cement? You can't tell.

If a crown comes loose or an inlay falls out, they go to another dentist. That's human nature. It's great for the other dentist. But what about YOUR practice?

FELLOWSHIP CEMENTS

Will Protect Your Reputation

Crowns can't come off. Inlays can't work loose when you use Fellowship Cements.

We say this. Make us prove it.

Sign the attached coupon and try them. You be the judge.

STRATFORD COOKSON CO.

42nd and Ludlow Sts.

Philadelphia, Pa.

Send and charge to me one \$1.50 portion of Fellowship Cement. If not satisfactory in every way I may return the unused portion and the charge will be cancelled. Also include your free booklet "Mixing Methods."

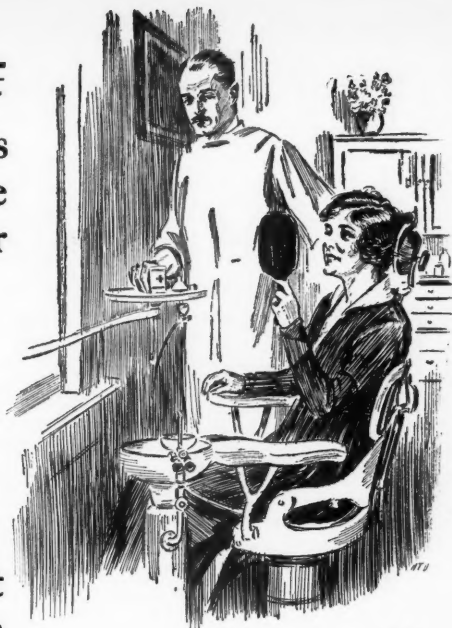
Name.....

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Color desired.....

Nothing makes
such a favorable
impression as your
ability to

*Meet the
Emergencies
in practice*



When a patient
presents with a
broken anterior tooth, it is usually up
to you to do something right away.

If the patient has an important engagement
that evening, as such patients seem often to have,
impressions and make-shifts are "taboo." If you
haven't an assortment of *Dentsply Crowns* on
hand your patient may feel compelled to go to
the dentist who has.

Be prepared, and at the same time save money by
purchasing a *Dentsply Crown Assortment No. 415*.

This assortment may be purchased on very reasonable terms.

ASK YOUR DEALER

The Dentists' Supply Company

220 West 42nd St.

New York

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*You are invited to
become acquainted with
The Caulk Synthetic Crown Form
first made known to
the profession at the
National Dental Association Meeting
New York
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1917*

*A sample will go to
you on request.*

*The L. D. Caulk Co.
Milford, Delaware*

R.S.V.P.

J-12-17



Shall We Stand Still ?

To Haynes credit is due for the first American-built automobile. It marked an epoch in transportation.

Yet between that earlier development of principle and the motor car of today there is but distant kinship.

In the nineties the Wrights achieved a machine that would actually fly. But the science of aeronautics has gone far since.

In the making of dental alloys, the impression is fostered that Dr. Black's research and findings embody all that ever can be known of alloys and amalgams.

Dr. Black was a man of vision—a delver into things and an assiduous analyst. But his comprehensive work stopped with his death.

Twentieth Century Alloy Perfected is Dr. Black plus years of investigation and demonstration in the finest dental research laboratory in America.

It is not the alloy of years ago. It is the best thought of then, improved by what we know now.

There's never a disappointment in **Twentieth Century Alloy Perfected**. Try it.

THE L. D. CAULK COMPANY, Philadelphia

LABORATORIES:

Millford, Del., U. S. A.

Toronto, Canada

DENTAL DEPOTS:

Philadelphia, Pittsburgh, Huntington, W. Va.

2-12-17



What's the Difference ?

That may be how you consider cement.

But there is difference—decided difference.

It is just the difference between a crown that leaks and one that doesn't.

It is the difference between a facing that doesn't hold and one that does.

It is the difference between a filling that demands removal after a few months and one that is good for years.

And the difference may be due to the irresponsible bang-her-through methods of one dental cement manufacturer as contrasted to the thoughtful, conscientious, scientific **Caulk** processes.

The permanence of the most costly work may depend upon a few grains of cement.

Why chance a material about whose merit there is a shade of question ?

Caulk Cement is dependable—forty years so.

It is priced at :

\$1.25	the single portion
2.25	- - double portion
4.00	- - - - four shade
12.00	- - - - six shade

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LABORATORIES:

Milford, Del., U. S. A.

Toronto, Can.

DENTAL DEPOTS:

Philadelphia, Pittsburgh, Huntington, W. Va.

3-12-17

Good things come in CAULK packages

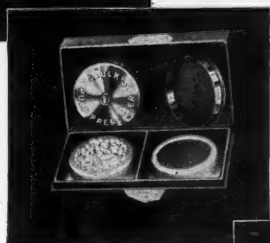


Pro Tem—a slow-setting temporary cement that will not compress or permit medicaments to escape. It constitutes a perfect seal to the cavity, and is a protection against irritation, leakage and breaking down of margins. Easy to insert, certain to stay, easy to remove.

Price, \$1.00 per package

**Caulk's
Pulp
Preserver
and Nerve
Capper**

heals and
protects ex-
posed pulp.



It forms a strong
bridge over which
the permanent fill-
ing may be placed
without irritation to
the sensitive pulp.

Price, \$1.50
per package

Cresolform for the treatment of ab-
scesses, acute or chronic. Equally
efficient as a permanent filling of
root canals. Produces sterilization
without irritation. Does not discolor
and deteriorate with age.

Price, \$1.50 per package



**THE L. D. CAULK COMPANY
PHILADELPHIA**

LABORATORIES:
Milford, Del., U. S. A.
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DENTAL DEPOSITS:
Philadelphia, Pittsburgh,
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This New Flask Is Very Large and Very Heavy

It is of the Donham type and has the largest measurement of any flask on the market.

Modern denture-making demands a large roomy flask.

And Here It Is

It will fit any $4\frac{1}{2}$ inch vulcanizer and the regular Donham Spring Clamp.

The No. 2 Buffalo Donham Clamp takes one No. 22-C Flask and No. 3 Buffalo Space Filler.

The No. 3 Clamp just holds two of the flasks.

We make the flasks in brass at \$5.00 and in iron at \$2.50.

Ask us to tell you more about the No. 22-C Flask and the modern method of denture-making.

Buffalo Dental Manufacturing Co.
BUFFALO, N. Y., U. S. A.

You Make No Mistake



If you select either of the two Cabinets shown on this page.

Both are in hundreds of dental offices and are giving the very best of satisfaction. Why experiment?

Our new catalogue shows a very complete line of furniture, including several new designs. Shall we send it?



THE AMERICAN CABINET CO.

Two Rivers, Wisconsin

KOLYNOS

In Military Camps

The danger of infection from germ-laden mouth spray is much increased in camps where men are in close contact.

Isolation of infected persons is often impracticable; and sometimes disregarded until forced upon the attention of the over-worked surgeons.

The only prophylactic measure possible to the individual soldier is to secure for himself a sanitary condition of the mouth and throat. Here Kolynos Dental Cream is the Soldier's friend.

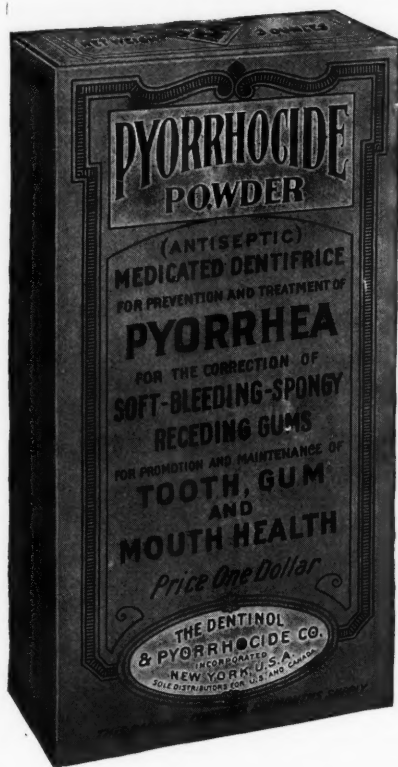
Its regular use produces a condition of antiseptis unfavorable to readily imparting or acquiring infections conveyed by mouth spray in the close atmosphere of the barrack.

THE KOLYNOS COMPANY

New Haven

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Success In Pyorrhea Treatment Is the Result of Two Co-ordinating Forces—the dentist and the patient.



The irritating causes of pyorrhea . . . deposits, mal-occlusions and faulty mechanical work, must be removed or corrected by the dentist and the infected tissues restored to normal health.

The patient must keep his teeth and mouth clean—he must aid the dentist in repairing the broken down gum tissue.

As the kind of work done by the patient is a factor in the treatment of pyorrhea, the importance of an effective medium for the patient's use is emphasized—it must clean and polish the teeth—it must aid in healing diseased gums. Pyorrhocide Powder is effective. It is medicated with Dentinol.

Samples of PYORRHOCIDE POWDER, and complimentary bottle of DENTINOL for demonstration purposes in treating pyorrhea at the chair mailed on request.

The Dentinol & Pyorrhocide Co.

INCORPORATED

110-112 West 40th Street

New York

USE **LAVORIS** TRADE MARK The Original **ZINC CHLORIDE ANTISEPTIC**

IT WILL GIVE YOU THE
GREATEST POSSIBLE ASSISTANCE
 IN YOUR PRACTICE

BECAUSE THE ZINC CHLORIDE IS IN A PERFECT
 AND PERMANENT SOLUTION & YOU GET
 THE FULL THERAPEUTIC VALUE OF IT

AND IT IS SO VERY PLEASING TO USE

Experience with the men in the trenches is wrecking some of the old theories and practices of hygiene and sanitation: never before have there been opportunities for observation on such a scale and never have results been so startling and so well authenticated.

Next to the demand for surgeons and nurses for the actually wounded, the demand for Dentists is most persistent; it is not only sound teeth but the protection against disease that makes mouth cleanliness an essential of the fit man in the ranks.

Most Dentists know about DIOXOGEN and its value for making a mouth clean; they know how harmless it is and how superior DIOXOGEN is to ordinary peroxide.

Every Dentist should use and prescribe DIOXOGEN. A clean mouth is as important in civil as in military life and DIOXOGEN has been called the best mouth wash available

THE OAKLAND CHEMICAL COMPANY
 10 Astor Place New York, N. Y.

Can You Tell the Government

how much of your gross income is used for conducting your practice and how much is net? If you keep a

Dentist's Business Record

(Price Three Dollars)

you can answer at once and accurately.

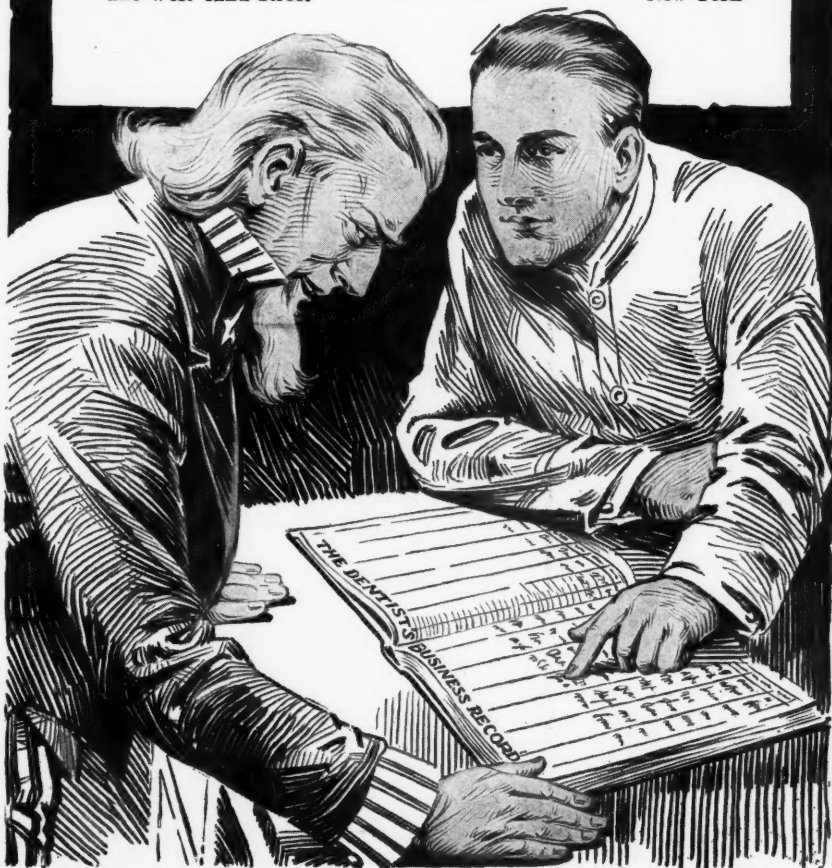
Easy to master. Easy to keep. Exhaustive and accurate.

*Specimen pages enough for a liberal trial, with full directions,
sent on receipt of twenty-five cents.*

THE DENTISTS' SUPPLY COMPANY

220 West 42nd Street

New York





KALO-KAIN

A Present to the Dental Field from
A. P. DE SANNO & SON, INC.
PHILADELPHIA, PENNSYLVANIA

SUCH a monstrosity as the calcified teeth shown here might never present itself in your practice, and yet every day you have operations to perform that require just as deep an anesthesia as did the removal of these "Siamese-twin" molars.

What anesthetic, used infiltratively (direct into the gum tissue) will permit of the *painless and immediate* extirpation of nerves in lower molars? Kalo-Kain will do this—and we never have heard of any other. The Komplete Kit, with leak-proof syringe and with needles of the proper length, costs but \$5.50.

The Kalo-Kain itself is \$1.50 per box of 12 ampules. Send your Harrison blank today, made out to us and signed; tell us whether you want the kit or just the Kalo-Kain and begin with KALO-KAIN NOW.



At Dental Conventions

dentist after dentist walks up to our exhibit and says, "You're the people who put out LIGHTNING DISKS and STRIPS, aren't you? They're fine; don't see how I ever got along without them. What else are you selling?"

¶ In other words, LIGHTNING DISKS and STRIPS have given us a reputation for honesty and our goods the stamp of honest value. If you've used LIGHTNING GOODS you know why; if you haven't used them let us get you acquainted at once. They'll save you lots of time and therefore money—they work like lightning.

¶ LIGHTNING DISKS and STRIPS are made of the best grade of steel (watch-spring steel), thinner than the hair on your head. Upon this steel is incorporated as an actual part of the metal an abrasive which is next to diamond dust for hardness—alundum.

¶ LIGHTNING GOODS as a consequence are *strong* and they *wear*. They may be used over and over again and work equally well wet or dry (may be sterilized).

¶ The DISKS are \$2.00 per dozen, assorted, and the STRIPS \$1.50 per dozen, assorted. Send this advertisement in with your order and we will *give* you a guard for your handpiece—mention make of handpiece and tell us how you want the goods sent. Also mention your dealer's name.

A. P. DE SANNO & SON, INC.

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Prophylactic:

*Formamint Tablets
(Dissolved in the Mouth)
Make Mouth and Throat
Disinfection Easy and
Pleasant*

"FORMAMINT is very serviceable in preventing infection of wound surfaces resulting from surgical operations, stimulating and disinfecting the tissues to which it is applied and promoting the formation of new and healthy tissue."

H. Schweitzer, M.D., D.D.S., in the "Dental News," February, 1913

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Please Your Patients, Also Save Money

Use Hygienic Head Rest Pads instead of napkins. The pads are *absolutely* clean. The napkins may, or may *not* be clean.

One dentist writes us: "Since I have used your Sanitary Head Rest Pads I have not only pleased my patients, but have saved large laundry bills. My patients tell me I am up-to-date. They see me tear off the soiled sheet of paper before they enter the chair and know their heads rest on a perfectly clean surface."

It is an ideal head rest. The pad acts as a cushion and the head rests easily on it. Try a package.

We recommend the No. 2 pad. It can be attached to any sectional chair head rest.

Price, per package, containing two pairs, \$1.00

Send us \$1.00 in currency and we will send you the package. Ask your dealer for them.



Illustrating our Head Rest Pads No. 2 attached to sectional chair head rest

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NOVOCAIN

Novocain is now being manufactured by us in the United States by the processes used at the Hoechst plant, and is proving therapeutically and chemically identical with the imported product.

General distribution of Novocain will be made as soon as urgent U. S. Government orders have been filled.

Farbwerke-Hoechst Co.

H. A. METZ, President

H. A. METZ LABORATORIES, Inc.
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The Ideal Holiday Gift

A Suggestion for Friends, Wife or Sweetheart

The Noratchet Operating Stool



**Automatically
Meets Every
Motion**

**Will Save
Nerves
Preserve
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Patented
August 16, 1916

**When Slightly
Inclined
Chest is Thrown
Forward and
Shoulders Back**

A pleasing, agreeable and esthetic, as well as a most sensible and practical addition to the equipment of any office, having no projecting levers; its mechanical features are such as skill, ingenuity and long experience suggest, leaving nothing to be desired.

While the seat revolves freely, such revolution has nothing to do with its height, that feature being controlled by a gripping device within the standard which cannot slip under the weight of the operator. The seat is adjusted up or down by a touch, the adjusting lever being a simple steel ring under the seat, entirely out of the way, yet always just where either hand drops naturally, wherever that may be. No pushing is required, since there are no springs to overcome. It is transported about the office by tipping slightly and rolling upon its base.

The Noratchet Operating Stool Will Help

PRICES

Noratchet Operating Stool.....	\$20.00
<i>Stock Finishes—Decorated black, gray, mahogany, blue and white enamel.</i>	
*Stock Upholstery—Maroon and green plush; green, blue, gray and maroon haircloth; green, black, maroon, gray and red leather.....	\$3.00
Special finishes and upholstery, other than above, extra.....	2.00
Special finish only, other than above, extra.....	1.00
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Extra height for men over six feet tall, extra.....	2.00

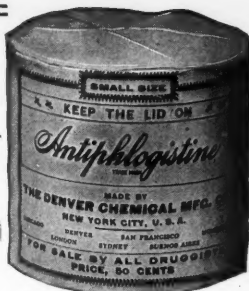
*Subject to market conditions.

Your Dealer will be glad to Demonstrate THIS Stool and fill your order

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FALSE ANKYLOSIS OF THE JAW

Dr. Sturdevant in the October issue of "The Bloodless Phlebotomist" reports three interesting cases of dental ankylosis.



This publication has been mailed to every dentist with a known address.

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Orthodontia Appliances of Every Description

We Make a Specialty of all OUT-OF-THE-ORDINARY-CASES

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Work called for and delivered within City limits, Brooklyn, Jersey City, Hoboken and other nearby towns. Mail orders promptly attended to.



LOOK

Another cleft palate case that found relief in the *Eureka* retainer.

Their superiority of renewing cup with others is apparent at a glance.

Comparison sells it—you need no extras—easily attached—on and off in a second by patient.

Give Them a Trial—That is all we ask
Upper or Lower, \$2.00 per box of six

EUREKA SUCTION CO., Loudonville, Ohio

SAL HEPATICA

Materially
AIDS

Local Treatment

In

PYORRHEA

Bristol-Myers Co.
New York



Kerr Perfection Impression Compound

You will never appreciate how uncertain and unsatisfactory a task it is to take a full upper or lower impression by the old guess method that is generally used until you have mastered the art of taking a test impression with Kerr Perfection Impression Compound.



In taking an impression the three main points to be attained are: (a) the correct height and length of the finished plate; (b) an equal strain on the stationary hard and soft parts of the covered mouth at about the pressure at which the plate is to be worn; (c) room for the movable parts to move, without leakage, that is, relief-without-leak in muscular motion.

*Booklet giving information relative to the Greene
System of Impression taking with Kerr Perfection
Impression Compound sent upon request.*

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What more pleasing, attractive, and appealing item of important equipment may adorn your office than the

Electricabinet?

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Important and far reaching, as these features are, they are but incidents compared with the ever ready and invaluable assistance the ELECTRICABINET supplies to modern practice.

It adds wonderfully to a dentist's efficiency, greatly facilitates his work, conserves his energy, saves his time and enlarges his income.

The ease, certainty, and promptness with which he masters conditions hitherto complex and baffling, is indeed a revelation.

We shall be pleased to send you complete information—a post card will bring it promptly.



THE ELECTRICABINET
"once seen always desired"
Price, \$265.00

THE PELTON & CRANE COMPANY

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VULCOLOX

[PATENTED]

CONSTRUCTION

In the building of Vulcolox teeth every engineering principle, every mechanical law that was involved in the Vulcolox idea, was searchingly studied. Upon this foundation sure progress was made, resulting in the Vulcolox construction, which assures strength of tooth, security of attachment, distribution of strain, unrestricted alignment, and improved (more natural) appearance.

CONFORMATION

Vulcolox Teeth follow Nature's design. The free portion (crown) increases rapidly in its labio-lingual diameter from just beyond the cutting-edge to the linguo-gingival margin; while the supporting portion diminishes gradually from that line. There is no sharp cutting-down of the porcelain immediately beyond the gum line,—forming a line of weakness—as in the forms that preceded Vulcolox.

CONFIDENCE

Confidence in the fundamental principle of the Vulcolox retention inspired the development of Vulcolox Teeth. The internal interlocking attachment and balanced retention re-inforced by the natural tooth conformation assured:

1. A Stronger Form of Tooth
2. A Better Attachment
3. Unrestricted Liberty of Alignment

CONVINCING

The mechanical advantages, outlined above are only a part of the greater utility afforded by the Vulcolox conformation. Vulcolox teeth can be mounted in any practical alignment desired—set inside, outside, or on the ridge, rotated as required, without exposing the vulcanite in the interstices or lessening their functioning efficiency.

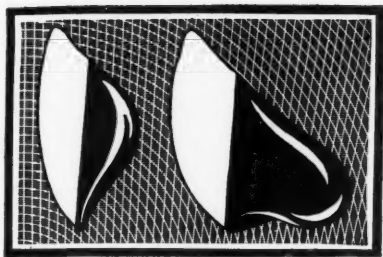
For Sale by Dental Dealers and at our Houses

The S. S. White Dental Manufacturing Co.

"Since 1844 the Standard"

Philadelphia

New York Boston Chicago Brooklyn Atlanta Oakland San Francisco



Protect Facings

Q Protection is either adequate or inadequate, and in every case porcelain facings should be protected so that they can present counter-force to meet force.



Q The backings for Steele's Interchangeable Facings being longer than the facings at incisal end, Perfect Tip Extension Protection is unavoidable unless it is carelessly destroyed by trimming the backing too short before soldering, or improperly finishing after soldering.



Q *The Better Method is fully described in Technic which will be sent on request.*

Address

The Columbus Dental Mfg. Co.
Columbus, Ohio, U. S. A.

Does Your Operating Room

inspire confidence in your patients?

An antiquated equipment unquestionably has a direct bearing on the loss of patronage which in turn reduces the value of a practice.

Ritter Dental Equipment in your operating room will accomplish many important things—

It will reduce floor space required.

It will reduce footsteps and thus increase your efficiency.

It will make a lasting impression upon your patients.

It will give you just cause for taking pride in the appearance of your offices.

May we have the pleasure of sending you descriptive literature touching upon our product and service to the profession?

THE RITTER DENTAL MFG. CO.

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PHILADELPHIA

NEW YORK

"I get two and three times as much for amalgam work since I have used the Crandall method and my services are worth the money I charge for them."

We quote from this letter, without the writer's permission, because he seems to us to have hit upon one of the vital reasons for the prevailing low fees for amalgam work.

Many dentists contend that their patients will not pay more than a certain small sum (usually seventy-five cents or one dollar) for any amalgam operation.

If the real reason for this should be traced to its original source it would often be found in the dentist's lack of confidence in his amalgam work.

The CRANDALL METHOD OF AMALGAM RESTORATION gains the confidence of the patient because of its careful attention to detail. It gives the dentist that confidence which comes from the use of a scientifically correct material according to a standardized method. His belief in the permanence of the result will enable him to obtain suitable fees for it.

Ask us to send you "Standardizing the Amalgam Filling," a 72-page book, with nearly 80 illustrations, which outlines fully the Crandall method of Amalgam Restoration. Published for free distribution to the dental profession by

THE CLEVELAND DENTAL MFG. CO.

Standard Forceps, Elevators
And Extracting Accessories



Crandall's Scientifically
Tested Non-Zinc Alloy

CLEVELAND, OHIO, U. S. A.

Clev-Dent Hand Operating Instruments

Metric Burs

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MR. DENTIST!



It's a good system! A safe one! Your parcel returned if you are dissatisfied with our valuation. No arbitrary "take what you get." Try it!

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A. ROBINSON & SON, Assayers and Refiners
149 Canal Street Established 1879 New York
CAUTION—Register or insure all parcels

Dentsply and Twentieth Century Crown Posts

will successfully meet all tests. They are easily adapted and do not bend under strain. They are therefore safer. **They have ample strength.**

Remember these points when you order. Strength and Adaptability. That's why these crown posts are unequalled.

THE DENTISTS' SUPPLY COMPANY
220 West 42nd Street New York, N. Y.

AMERICAN PLATINUM WORKS

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PLATINUM

Foil and Sheet, Specially Soft

WIRE SQUARE, TRIANGULAR, HALF ROUND AND ROUND
SPECIALLY HARD, MEDIUM AND SOFT

Extra Pure Platinum Wire for Electrical Furnaces
Platinum Ware of every Description

WE EXCHANGE, BUY, AND REFINE PLATINUM AND PLATINUM
GOLD SCRAPS; ALSO DENTISTS' SWEEPS

For
Perfect Restorations
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Bases for
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Perfect Inlays

Restorations for
 Broken down
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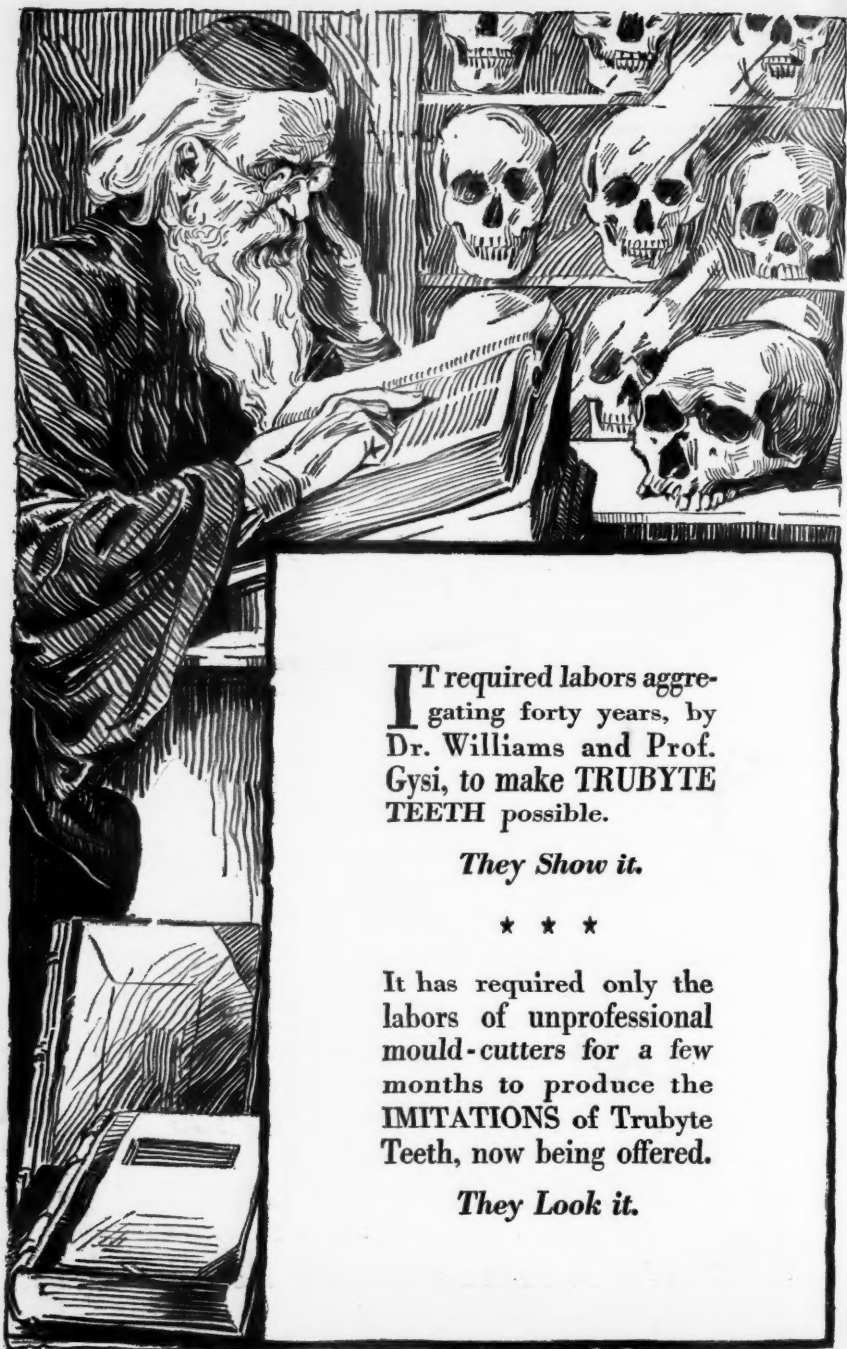
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